Future Academy

Online Blood Bank System

System Analysis & Design Project

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Chapter1

Introduction

Blood banking is the process that takes place in the lab to make sure that donated blood, or blood products, are safe before they are used in blood transfusions and other medical procedures. Blood banking includes typing the blood for transfusion and testing for infectious diseases.

Over the years, blood banking has helped save countless lives. Thanks to advances in medical technology, blood banks can safely store blood donations, and process and screen blood to ensure safety for all.

Problem Statement

When there is surgery or some disaster occurs, it is natural that we start looking for the nearest blood bank to search for the required blood type and the required amount of blood, and if these requirements are not met, we start looking for another blood bank. That is the system followed. This system is not effective in disasters.

Some of these real problems: -

1) Waste of time and effort in argent cases that need blood resulting in many people losing their lives.
2) Lack of information about the place of blood and the place of donation.
3) Lack of awareness of the importance of donating blood.
4) After the donation, the blood goes through several stages before it is available for use and may be necessary for urgent cases.

Purposed Solution

Have an online blood bank system that provides organized information about the amount of blood and where they are available in your city, manages data on the amount of blood, and displays information about donors.

Tools Used In The Project

- Web
    1. Html
    2. Css
    3. Bootstrap
    4. JavaScript
    5. SQL Server
    6. PHP (Laravel)

Chapter2

Introduction (System Analysis)

A data flow diagram is a graphical tool used to describe and analyze the movement of data through a system. These are the central tool and the basis from which the other components are developed.
A DFD, also known as a "bubble chart," has the purpose of clarifying system requirements and identifying major transformations that will become programs in system design.
So it is the starting point of the design at the lowest level of detail.

A DFD consists of a series of bubbles joined by data flows in the system.

Literature Review: -

In Literature Review some of the projects are explained. All these projects are on blood bank management systems means how to manage blood banks how can a recipient can access to blood more easily than previous old traditional methods.

Many peoples try to improve blood bank working in their own ways and these are some them.

A. In “Short message service (SMS) based blood bank” by G. Muddu Krishna & S. Nagaraju (2016) [1]. They proposed a system in which services of blood bank will be accessed via SMS. If someone needed blood, then they have to request for blood via SMS and then packet count module of their system will check for availability of blood and response will be given by data processing module.
B. In “Automated online blood bank database” by Muhammad Arif; S. Sreevas; K. Nafseer; R. Rahul (2012) [2]
C. They come up with direct call routing technique by using asterisk. In every blood bank consist of a database and that will be managed by central server. When someone in need of blood call on their tollfree no. they will directly get connected to a donor and after receiving blood from that donor name of that donor will be kept on hold for 8 weeks.

D. In “Benefits of management information system in blood bank” by Dr. Sharad Maheshwari and Vikas Kulshreshtha [3]. They discuss about the beneficiaries of the blood bank management information system. They show advantages and benefits of these systems.

E. In “MBB: A life saving application” by Ramakant Gawande; Narendra Gupta; Nikhil Thengadi [4]. They come up with a system to link all donors and help in controlling blood transfusion process. Their system will also maintain database which hold data of donors and blood according to their city and further by their locality.

F. In “Blood donation and life saver: blood donation app” by Anish Hamlin M R; Albert Mayan J [5]. They introduced a system where when someone wants blood they login into their app and by GIS they can get details of nearby blood donors. They also can donate blood by registering themselves.

G. In “Android blood bank” by professor Snigdha, Pratiksha Lokhande, Siddhi Kesar and Pranita More [6]. came up with an android app in which updates information about donor’s time to time and also it shows all the blood banks near to user location. In this admin controls and have all information of the app.

H. In “A study on blood bank management system” by A. Clemen Teena, k. Sankar, S. Kannan [7]. They made a system through which they can manage information about donors and patients. So that whenever blood is needed they can use this information as blood bank authorized officers have access to this information.

SR. No.	PROJECTS	PROPOSED WORK	REVIEW
1.	Short message service (SMS) by Muddu Krishna and S. Nagaraju	Access to blood via an SMS service.	Easy to use and access.
2.	Automated online blood bank database by Muhammad Arif, S. Sreevas, K. Nafseer and R. Rahul	Contact donor via Toll free no.	It can contact only donors not blood bank.
3.	Benefits of management information system in blood bank by Dr. Sharad Maheswari and Vikas Kulshreshtha	compare between all existing Blood bank management systems.	Talks only about advantages.
4.	MBB: A life saving application by Ramakant Gawande, Narendra Gupta and Nikhil Thengadi	To link all Donors and help controlling in blood transfusion process.	Data is divided according to different areas.
5.	Blood donation and life saver: blood donation app by Anish Hamlin M R and Albert Mayan	Login in app and get information of blood donors Uses.	GIS for user to login and can see details of all donors at a time.
6.	Android blood bank by Professor Snigdha, Pratiksha Lokhande, Siddhi Kasar and Pranita More	Android app which has information of all blood banks and donors.	Users can get information about blood banks in their nearby areas.
7.	A study on blood bank management system by A. Clemen Teena, k. Sankar, S. Kannan	System to manage information about donors and patients and only authorized personals have authority to use that information.	Easy access of information as well security.

Business Requirements: -

1) There is no financial return from the system.
2) In order to reach the largest number of people and solve the problem of blood shortage.
3) The recipient must have an official recommendation.
4) Having data set about organizations that provide blood and data set about donor's information and blood donation information.

User Requirements: -

- **Donor**

1) To be able to view their donation records, including where and when they made donations, and the blood results for each, to learn of their donated blood quality and schedule their next donations.

2) To be able to view and update their personal information, including name, contact address, and phone number, to keep their donor's information record up to date with the blood bank.

3) To be notified of the blood results of their previous donation by e-mail, to know the success of their donation.

- **Blood Bank**

1) To be able to create, update, delete, and query donor's records in order to manage donor information.

2) To be able to create, update, delete, and retrieve donation records to manage information about donations made.

3) To be able to deposit donated blood into inventory when donations are made.

4) To be able to withdraw blood from the inventory and keep a record of bloodstocks to always keep count of the blood bags.

5) To be able to create, update, delete, and retrieve request records from hospitals to manage hospital requests for blood.

6) To be able to create, update, delete, and query hospital's records in order to manage hospital information.

7) To be able to send e-mails to donors for their user account and blood results through the system.

8) To be able to send e-mail responding to hospitals for their blood requests through the system.

Manger

1) Receive Report about blood stock after each transaction from blood bank.

- **Recipient**

1) To be able to view their request records.

2) To be able to view and update their personal information, including name, contact address, and phone number.

Functional Requirements:

1) New Recipient Management

1.1 Given that Recipient has accessed web-application, then the Recipient should be able to register through the web-application.

1.2 The Recipient must provide first name, gender, location, contact, username and password.

1.3 Given that the Recipient has registered, then the Recipient should be able to login to the web-application. The login information will be stored on the database for future use.

1.4 Recipient should be able to request for blood at emergency situation, Recipient need to define location, required date, contact.

The order requested will be sent to the blood bank and then to the Inventory to check the availability.

2) New Blood Bank Management

2.1 The Blood Bank should be able to view the status of the delivery time. If the delivery seems to be delayed, then the Organization manager must to able to Cancel the delivery person to get the update on the delivery.

2.2 The Blood Bank should be able to view received request and then respond to them.

3) New Donor Management

3.1 The donor must provide first name, gender, location, contact, username and password.

3.2 Search result can be viewed in a list. Each element in the list represents a specific donor. Each element should include first name, gender, location, contact. (Viewed by Blood Bank)

4) Generate new report for the manger

4.1 System should be able to generate report about blood stock after each transaction from donor and recipient for the manger.

Non-Functional Requirements: -

1. **Operational**
   1.1 The system can run on handheld devices.
   1.2 The system should be able to work on any Web browser.
   1.3 Requirements for website extensibility in case there is a need to add new functional requirements.
2. **Performance**
   2.1 The system should be available for use 24 hours per day, 365 days per year.
   2.2 The system will record user's activity.
   2.3 The system should maintain correct records of the Blood Stock according to Blood Bank.
   2.4 Usability for ordinary people.
3. **Security**

3.1 The Blood Bank Management System must be secured with proper user name and passwords.

3.2 The system must automatically log out all customers after a period of inactivity.

4. Cultural and Political

4.1 Respecting the human rights and privacy of donors and blood recipients by preventing access to their data and personal information except through the blood bank.

4.2 Personal information is protected in compliance with the data Protection Act.

System Requirements: -

1) The system should block donor from donation if he donates recently.
2) The system must allow the donor to create a profile for him to record all his data.
3) The system should allow the donor to check whether he can donate or not.
4) The system must allow the donor to find the nearest place for donation.
5) The system must allow the recipient to create a page for him to record all his data
6) The system should allow blood bank to access all existing blood stock.
7) The system should allow blood bank to add new blood.
8) The system must automatically delete blood that are not suitable for use.

Questionnaires

Direct Questions

1. What features do you want to want in the system?
2. Are you considering a specific system design?
3. Do you have specific parties to deal with (blood bank)?
4. Is it expected to respond to the request of the users through the blood bank or through a manager?
5. Do you have limited permissions for a certain type of user?

Indirect Questions

1. What problem did you face in order to turn to someone who makes this system for you?

2. What is your target group?
3. You expect the system to solve the problem, in the rate of 100% (What is your future view)?

4. This system is the real solution to the problem or not?
5. Are you set a specific budget for the project?
6. Do you have time constraints to finish the project?
7. What risks do you foresee and are you willing to take them?

8. What resources will this project benefit from? What external resources will be required?

SWOT Analysis:

Strength	Weaknesses
• Great efficiency. • Accurate information. • Prevention of blood shortage. • Easy to access and user friendly. • have automated processes to cut expenses.	• Low popularity of the system. • Lack of awareness about blood donation. • Lack of capital. • Challenges in keeping the website updated.
OPPORTUNITIES	**THREATS**
• Spreading awareness about blood donation. • Attempt for increasing the awareness about the importance of donating. • Attract larger and wider target audience. • Digitization of the full process.	• leak of user data. • Licensing, legal issues. • Competitors as charities with strong social media. • Difficulty in linking with the blood banks and donors.

Feasibility Study:

The feasibility study is performed to determine whether the proposed system is viable considering the Technical, Operational and Economical factors. After going through feasibility study, we can have a clear-cut view of the system's benefits and drawbacks.

- **Technical Feasibility:**

  The proposed system is developed using Active Server Page, VB Script and HTML as front-end tool and SQL SERVER as the back end. The proposed system needs a Personal Web Server to serve the requests submitted by the users. The Web browser is used to view the web page that is available within the Windows operating system itself. The proposed system will run under Win9x, NT, and win2000 environment. As Windows is very user friendly and GUI OS it is very easy to use. All the required hardware and software are readily available in the market. Hence the system is technically feasible.

- **Operational Feasibility:**

  The proposed system is operationally feasible because of the following reasons:

  The cost of the proposed system is almost negligible when compared to the benefits gained.

- **Economic Feasibility:**

  As the necessary hardware and software are available in the market at a low cost, the initial investment is the only cost incurred and does not need any further enhancements. Hence it is economically feasible.

  The system is feasible in all respects and hence it encourages taking up the system design.

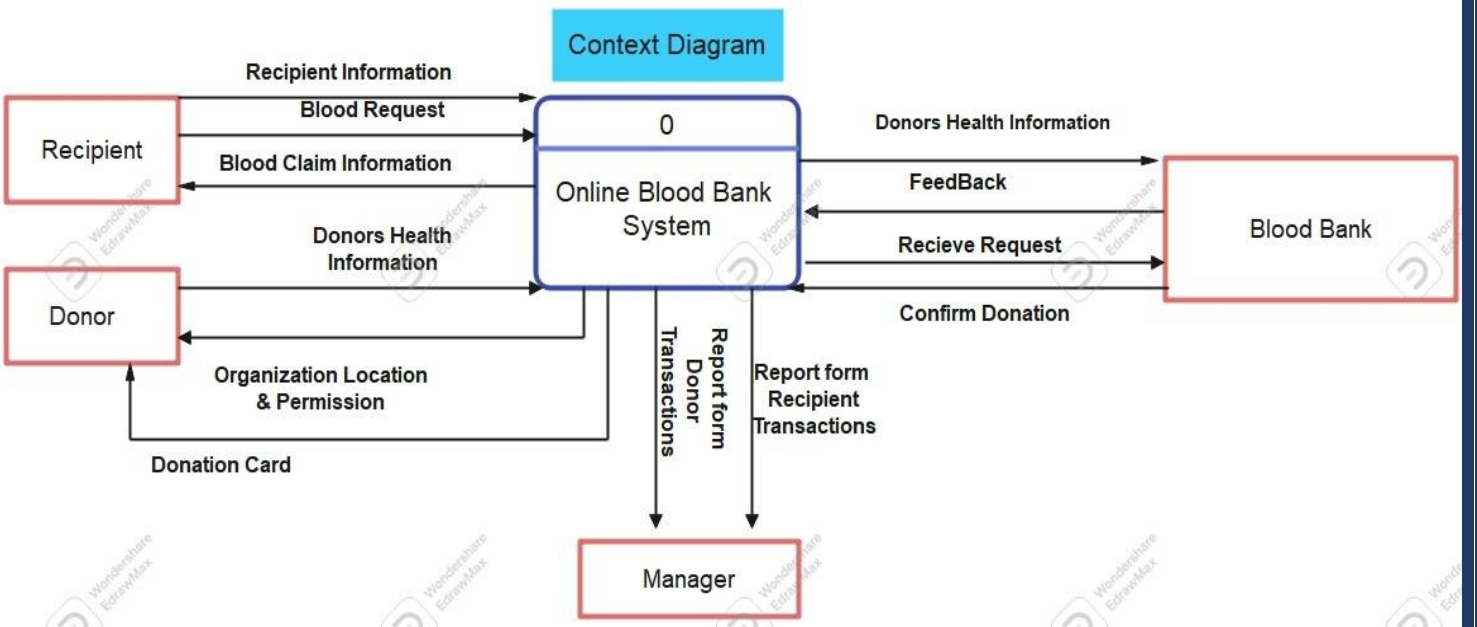
  The customer is benefited more as most of his time is saved.

- **Schedule (Time)feasibility:**
  Measures of how reasonable the project durations.
  We want to know the schedule to be able to have milestones of our project to ensure that we are building things, spending money.

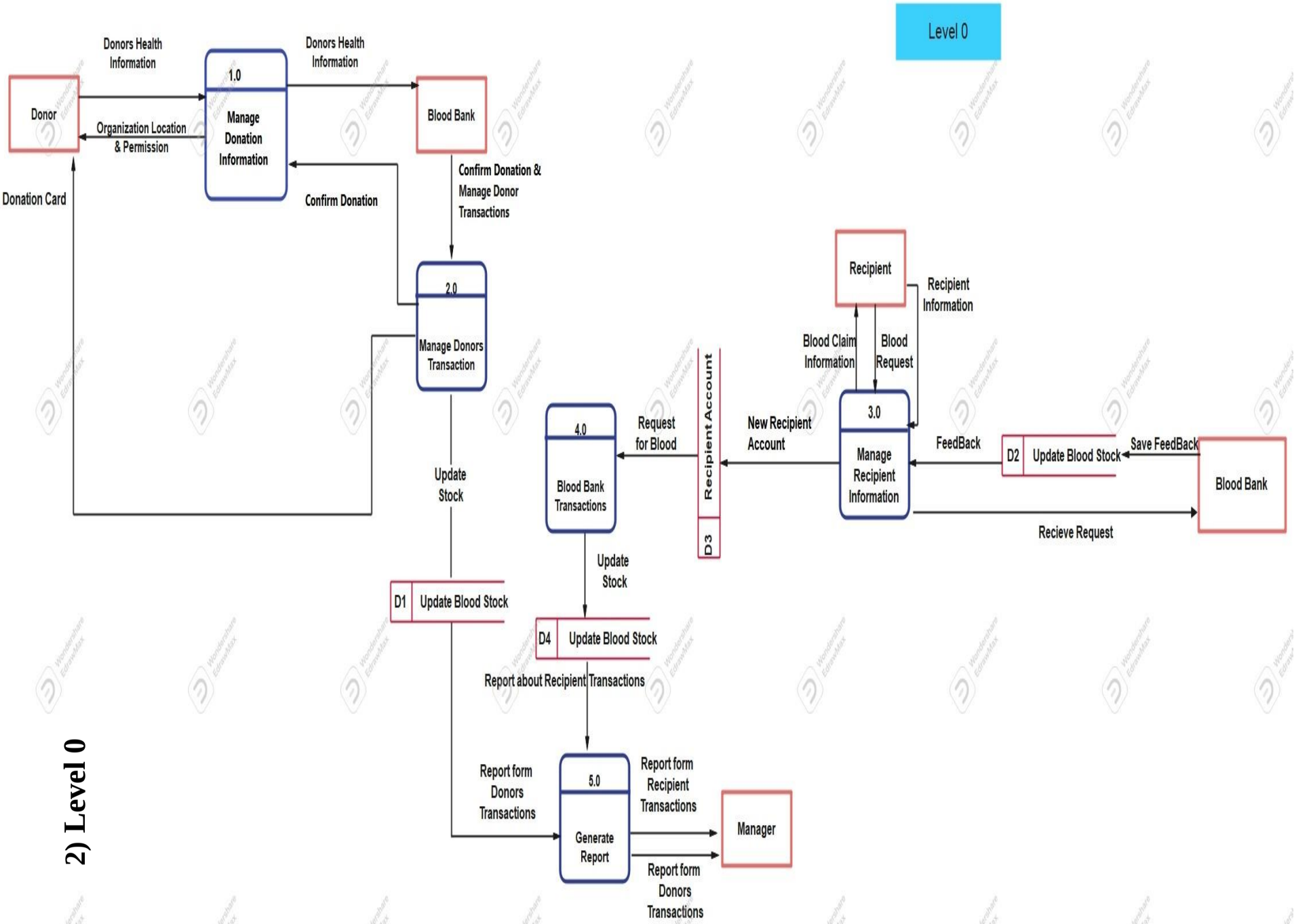
	sk Mc	Task Name	Start	End	Duration	Priority	Completior
1		Blood bank	10/3/2022	1/5/2023	69 days	1000	100%
2		CHAPTER 1	10/3/2022	10/10/2022	6 days	500	100%
3		INTRODU...	10/3/2022	10/4/2022	2 days	500	100%
4		PROBLEM ...	10/4/2022	10/5/2022	2 days	500	100%
5		Problem s...	10/6/2022	10/10/2022	3 days	500	100%
6		CHAPTER 2	10/11/2022	11/28/2022	35 days	375	100%
7		Introduction	10/11/2022	10/12/2022	2 days	500	100%
8		Questionn...	10/13/2022	10/17/2022	3 days	500	100%
9		User Requ...	10/18/2022	10/20/2022	3 days	500	100%
10		Functional...	10/21/2022	10/25/2022	3 days	500	100%
11		Non-Funct...	10/25/2022	10/27/2022	3 days	500	100%
12		System R...	10/28/2022	11/1/2022	3 days	500	100%
13		SWAT Ana...	11/2/2022	11/7/2022	4 days	500	100%
14		Feasibility...	11/8/2022	11/11/2022	4 days	500	100%
15		Use Case ...	11/14/2022	11/17/2022	4 days	500	100%
16		Data Flow ...	11/18/2022	11/28/2022	7 days	500	100%
17		Context ...	11/18/2022	11/18/2022	1 day	500	100%
18		Level 0	11/21/2022	11/23/2022	3 days	500	100%
19		Level 1	11/24/2022	11/28/2022	3 days	500	100%
20		CHAPTER 3	11/29/2022	1/5/2023	28 days	375	100%
21		Initial Des...	11/29/2022	12/7/2022	7 days	500	100%
22		UI and Fro...	12/8/2022	12/16/2022	7 days	500	100%
23		Back-end ...	12/19/2022	12/27/2022	7 days	500	100%
24		Integratio...	12/28/2022	1/5/2023	7 days	500	100%

Data Flow Diagram (DFD)

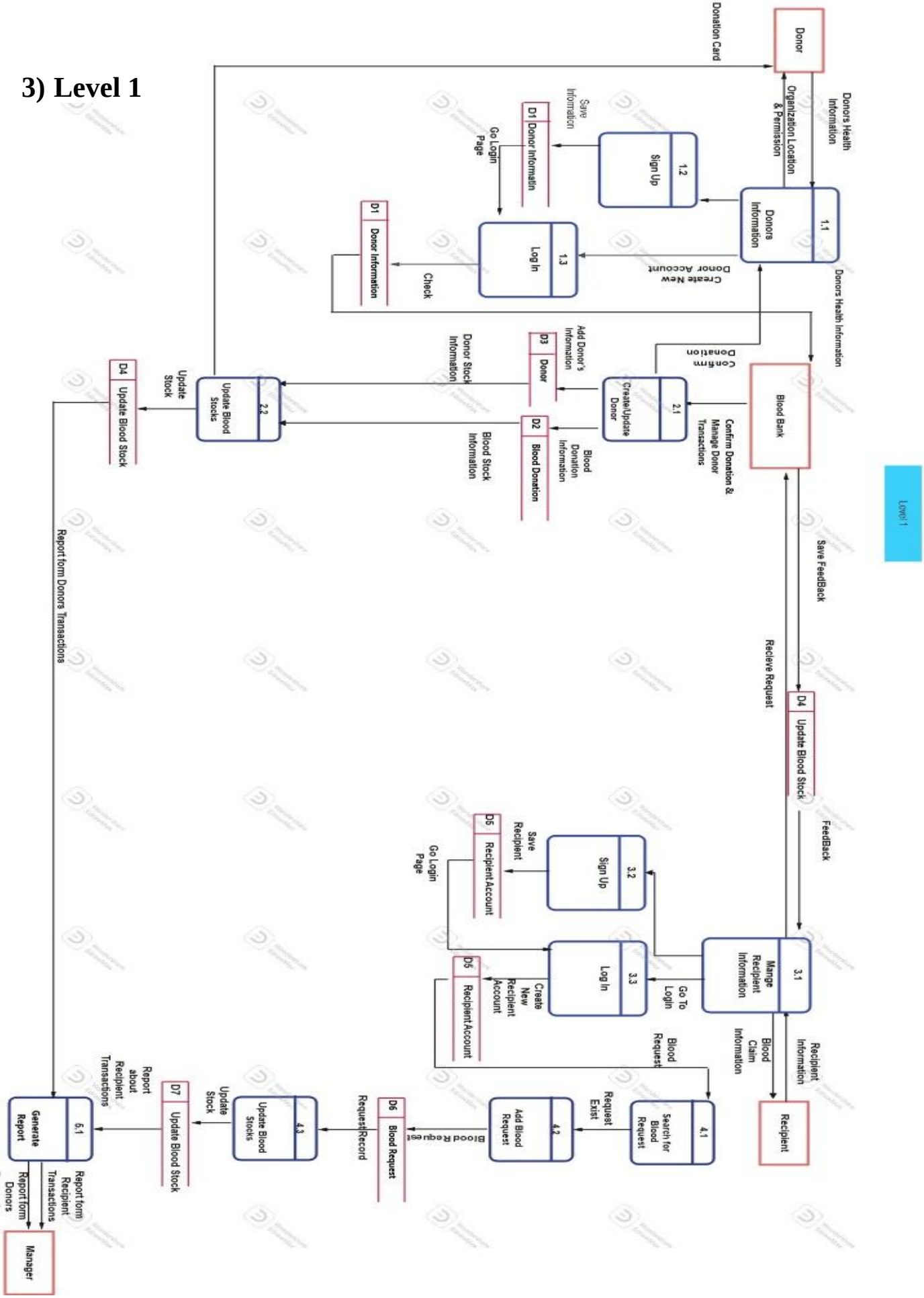
1) Context Diagram



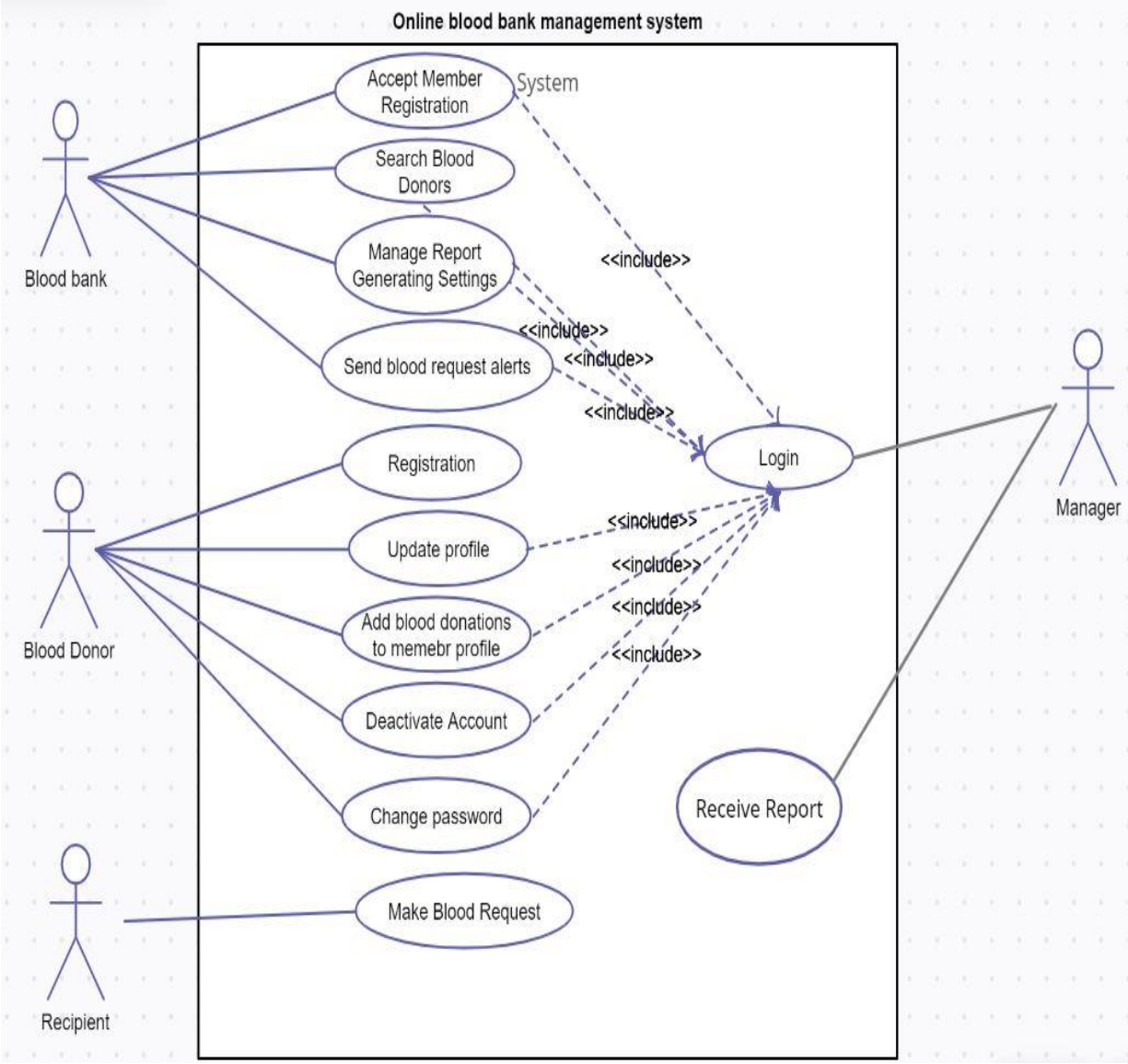
2) Level 0


Level 0
Donor
Donors Health Information
Organization Location & Permission
1.0
Manage Donation Information
Donors Health Information
Blood Bank
Donation Card
Confirm Donation
Confirm Donation & Manage Donor Transactions
2.0
Manage Donors Transaction
Update Stock
D1 Update Blood Stock
Recipient
Recipient Information
Blood Claim Information
Blood Request
3.0
Manage Recipient Information
New Recipient Account
Recipient Account
D3
4.0
Blood Bank Transactions
Request for Blood
FeedBack
D2 Update Blood Stock
Save FeedBack
Blood Bank
Recieve Request
Update Stock
D4 Update Blood Stock
Report about Recipient Transactions
Report form Donors Transactions
5.0
Generate Report
Report form Recipient Transactions
Report form Donors Transactions
Manager

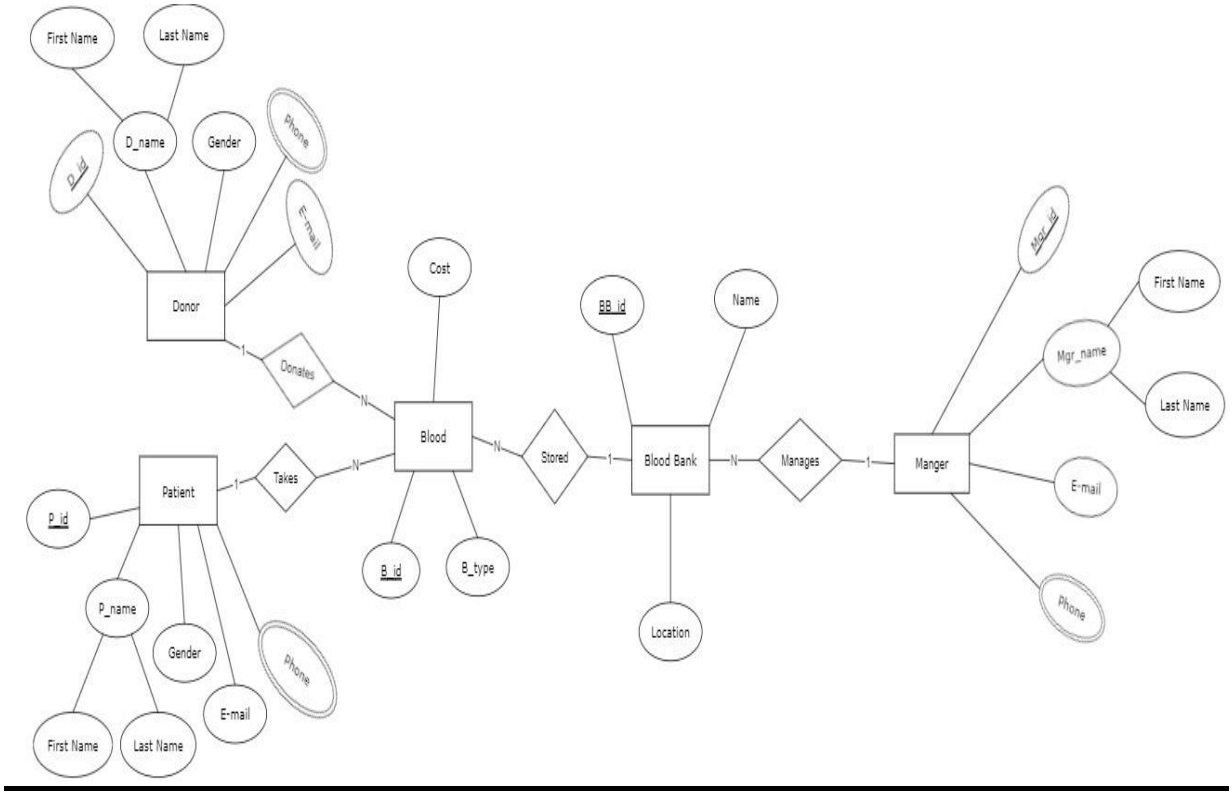
3) Level 1


Donor
Donation Card
Donors Health Information
Organization Location & Permission
1.1 Donors Information
Donors Health Information
Save Information
D1 Donor Information
Go Login Page
1.2 Sign Up
Create New Donor Account
1.3 Log In
D1 Donor Information
Check
Blood Bank
Confirm Donation
2.1 Create/Update Donor
Confirm Donation & Manage Donor Transactions
Add Donor's Information
D3 Donor
Donor Stock Information
2.2 Update Blood Stocks
D4 Update Blood Stock
Update Stock
Blood Donation Information
D2 Blood Donation
Blood Stock Information
Save FeedBack
Recieve Request
D4 Update Blood Stock
FeedBack
3.1 Mange Recipient Information
Recipient Information
Blood Claim Information
Recipient
Go To Login
3.3 Log In
Create New Recipient Account
D5 RecipientAccount
Save Recipient
3.2 Sign Up
D5 RecipientAccount
Go Login Page
Blood Request
4.1 Search for Blood Request
Request Exist
4.2 Add Blood Request
Blood Request
D6 Blood Request
Request Record
4.3 Update Blood Stocks
Update Stock
D7 Update Blood Stock
Report about Recipient Transactions
Report form Donors Transactions
5.1 Generate Report
Report form Recipient Transactions
Report form Donors Transactions
Manager

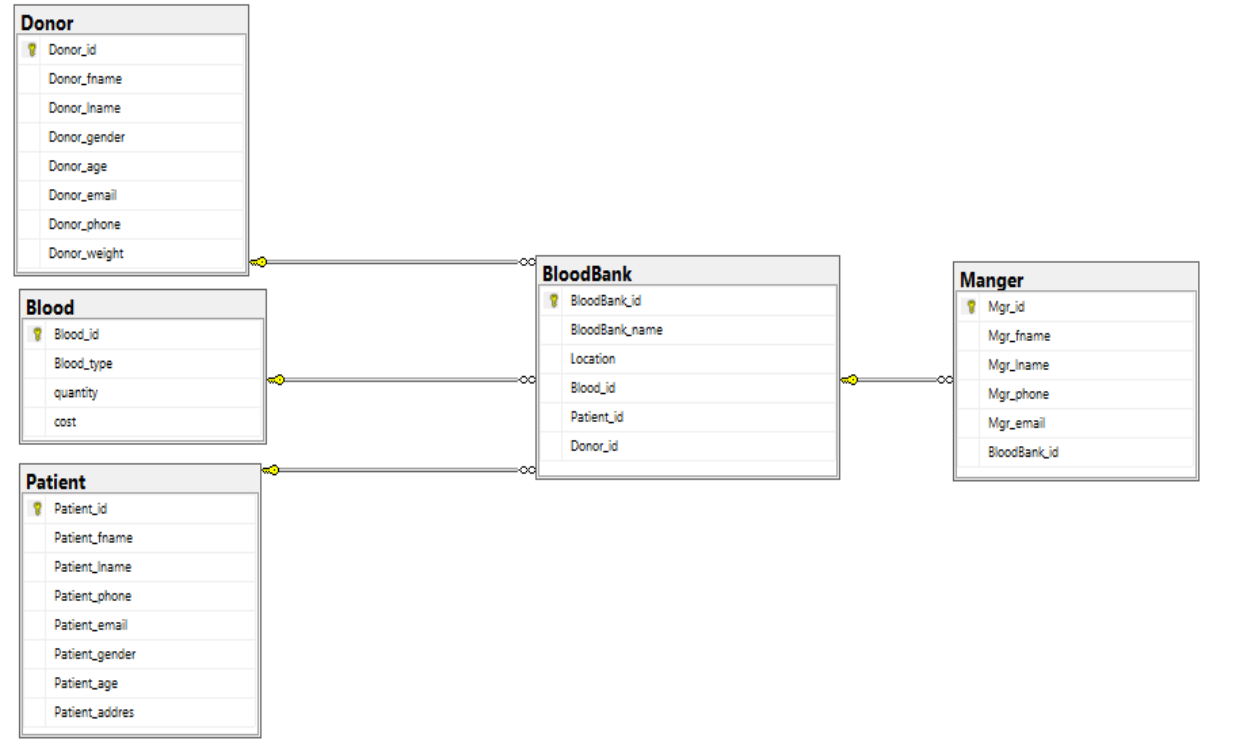
Use Case Diagram: -



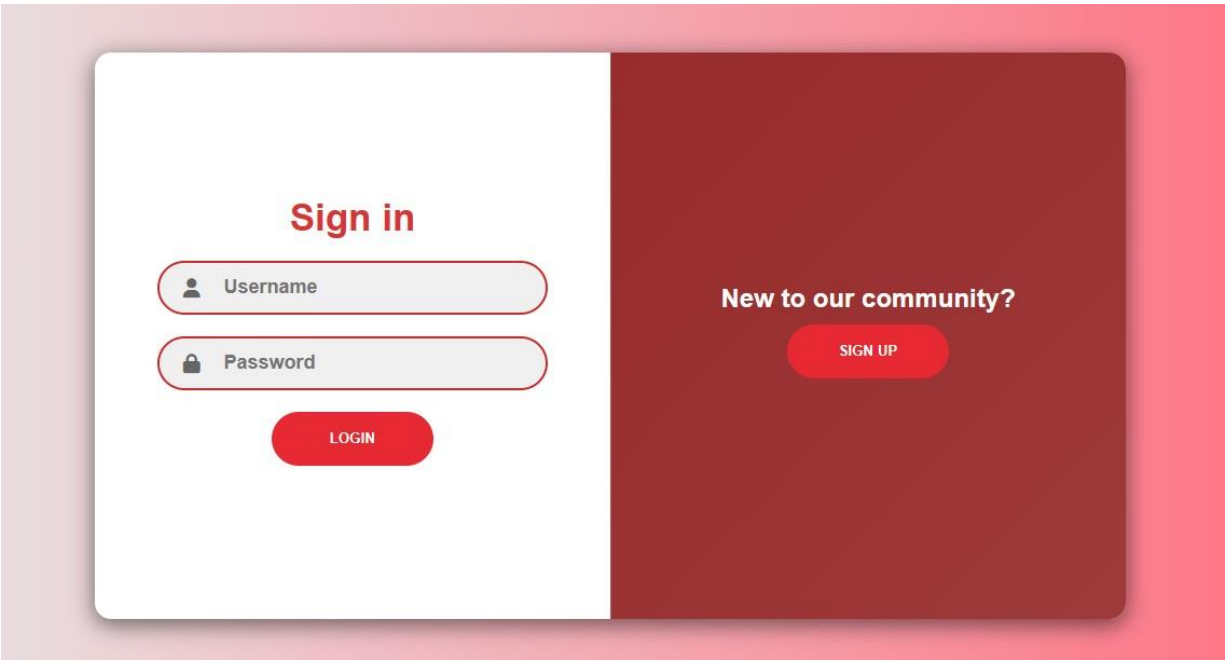
ERD:

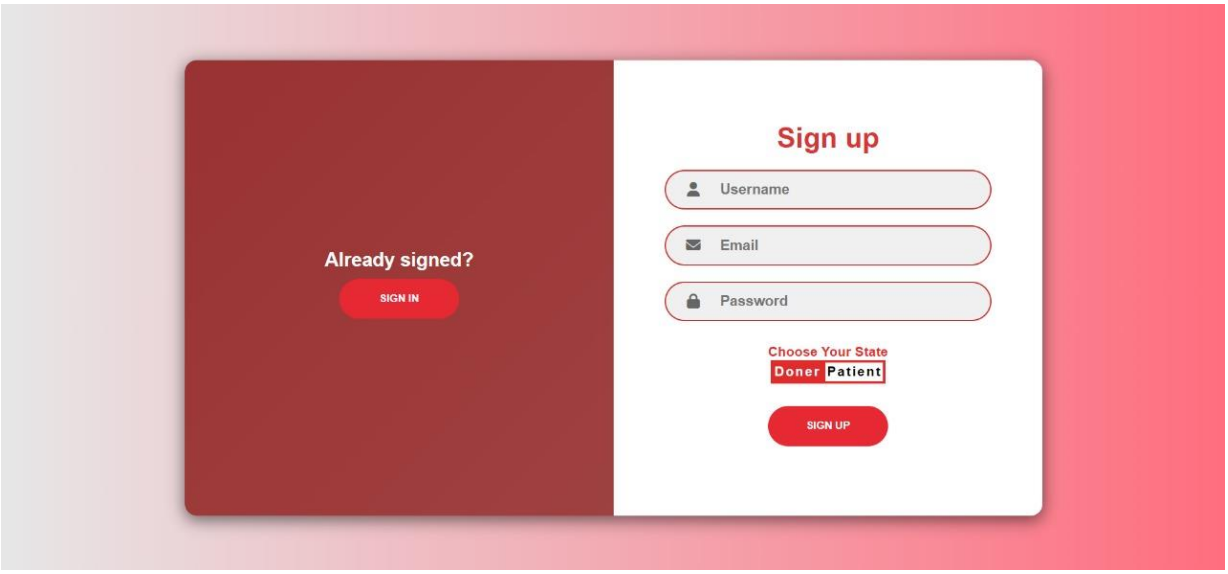

First Name
Last Name
D_name
Gender
Phone
D_id
E-mail
Donor
1
Donates
N
Cost
Blood
N
Stored
1
BB_id
Name
Blood Bank
N
Manages
1
Manger
Mgr_id
First Name
Mgr_name
Last Name
E-mail
Phone
Location
B_id
B_type
Takes
1
N
Patient
P_id
P_name
Gender
E-mail
Phone
First Name
Last Name

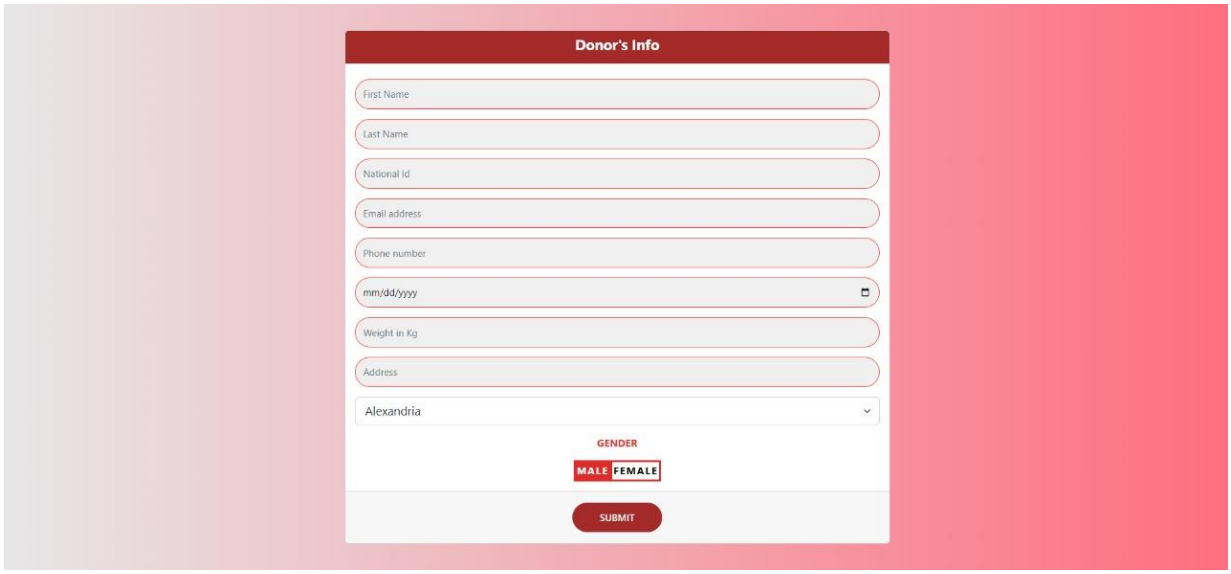
Schema:

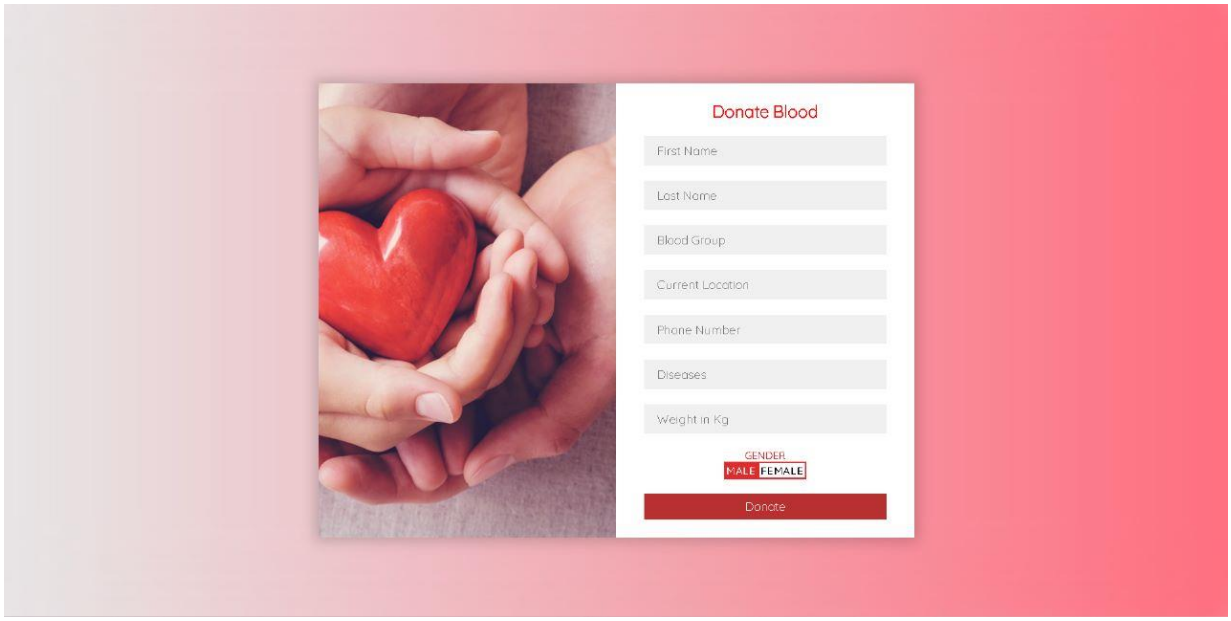

Donor
Donor_id
Donor_fname
Donor_lname
Donor_gender
Donor_age
Donor_email
Donor_phone
Donor_weight
Blood
Blood_id
Blood_type
quantity
cost
Patient
Patient_id
Patient_fname
Patient_lname
Patient_phone
Patient_email
Patient_gender
Patient_age
Patient_addres
BloodBank
BloodBank_id
BloodBank_name
Location
Blood_id
Patient_id
Donor_id
Manger
Mgr_id
Mgr_fname
Mgr_lname
Mgr_phone
Mgr_email
BloodBank_id

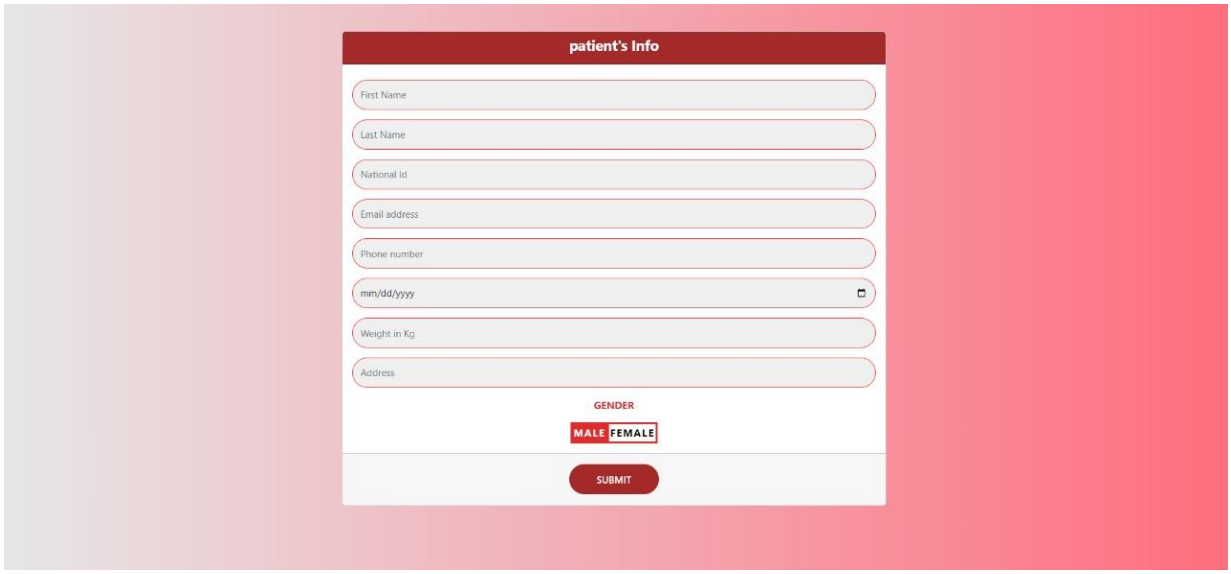
Screens Web of the Project:

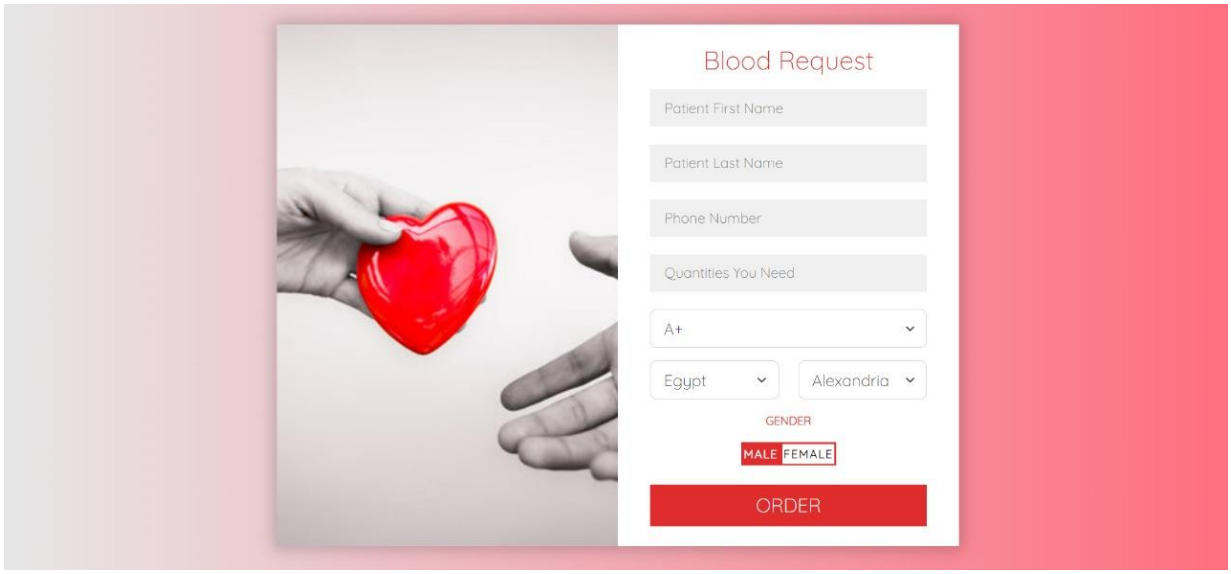


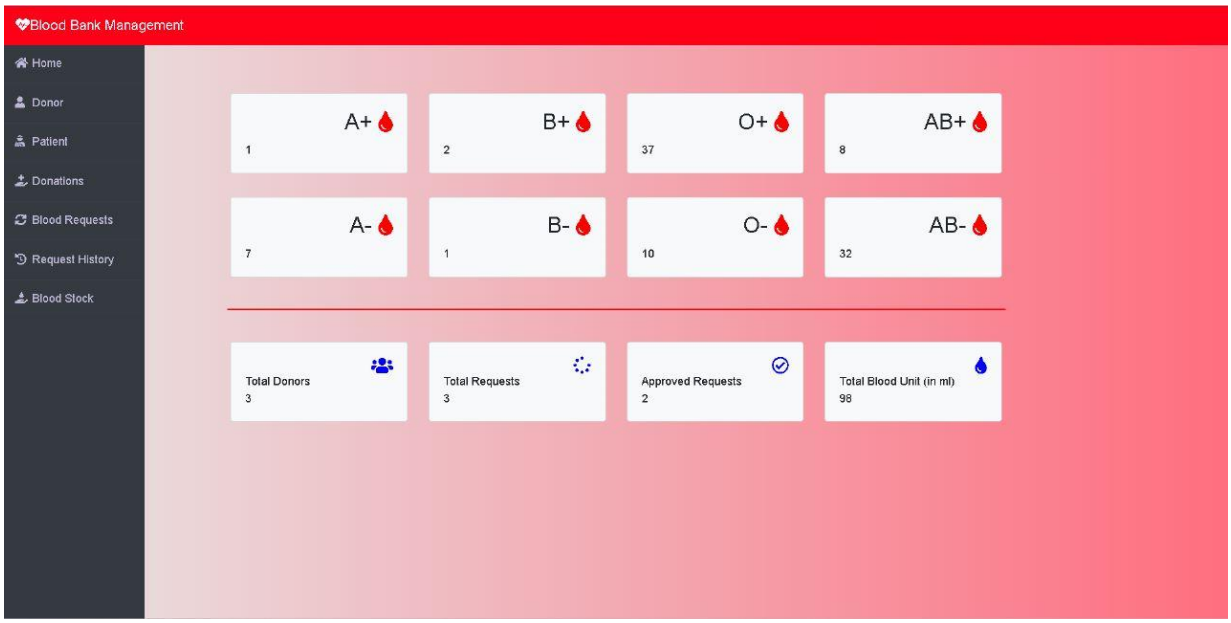



Donor's Info
First Name
Last Name
National Id
Email address
Phone number
mm/dd/yyyy
Weight in Kg
Address
Alexandria
GENDER
MALE FEMALE
SUBMIT

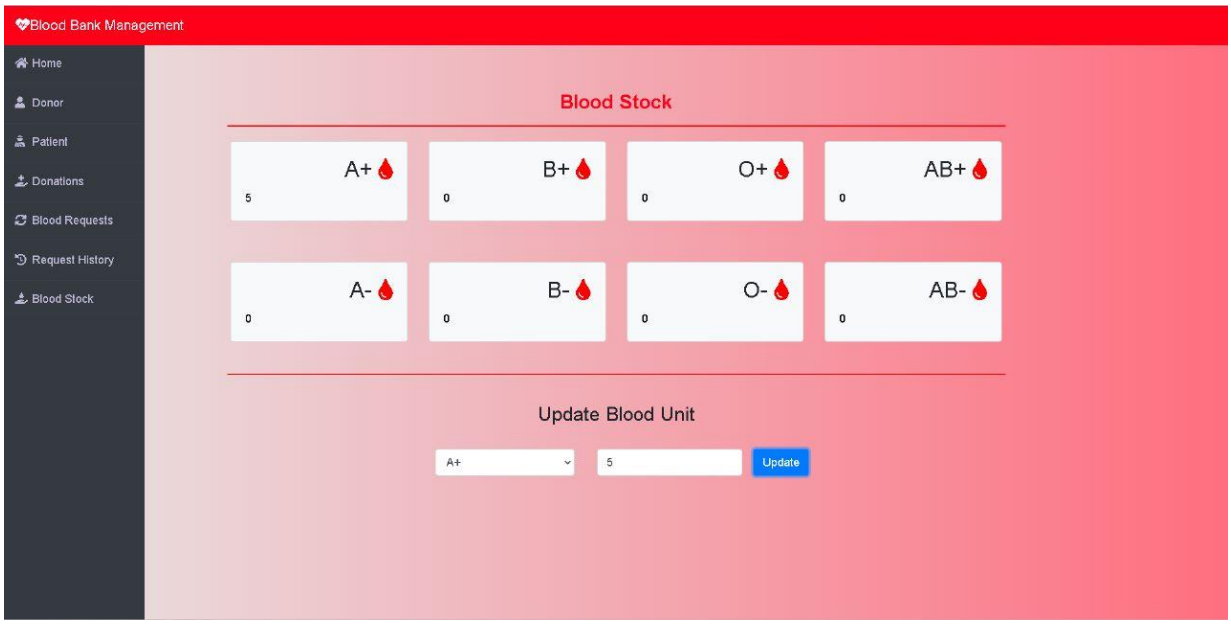

Donate Blood
First Name
Last Name
Blood Group
Current Location
Phone Number
Diseases
Weight in Kg
GENDER
MALE FEMALE
Donate


patient's Info
First Name
Last Name
National Id
Email address
Phone number
mm/dd/yyyy
Weight in Kg
Address
GENDER
MALE FEMALE
SUBMIT

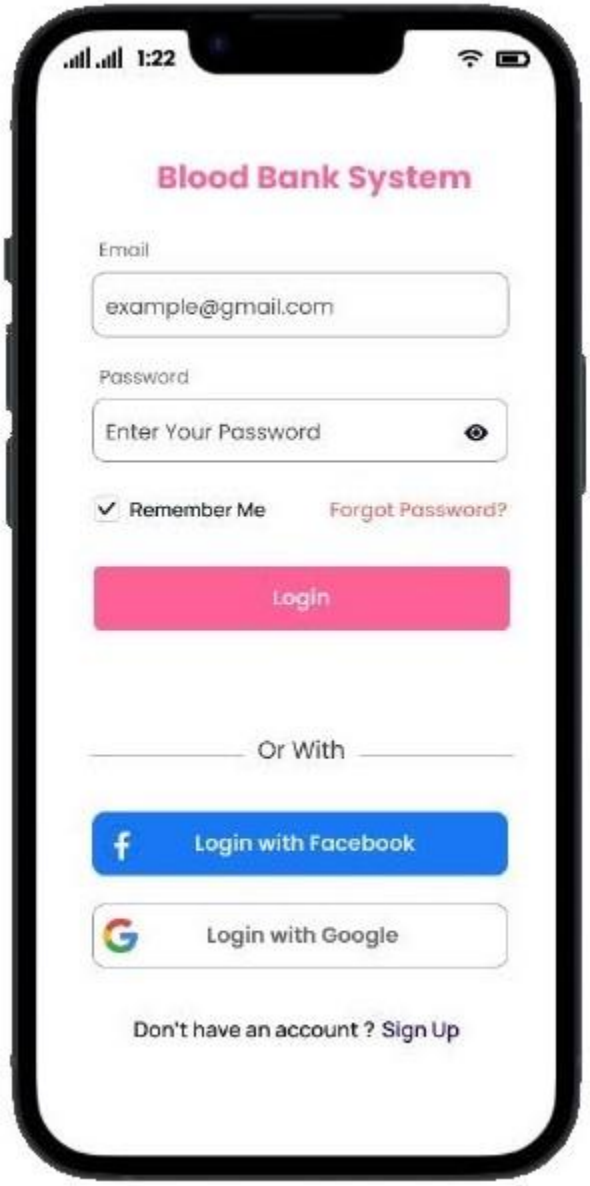

Blood Request
Patient First Name
Patient Last Name
Phone Number
Quantities You Need
A+
Egypt
Alexandria
GENDER
MALE FEMALE
ORDER

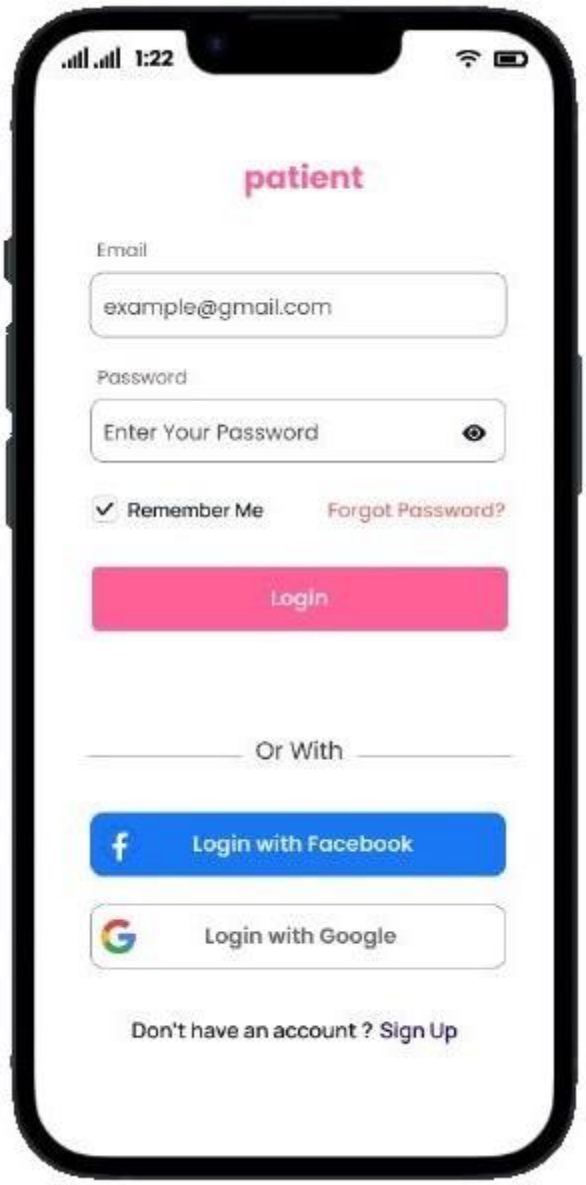

Blood Bank Management
Home
Donor
Patient
Donations
Blood Requests
Request History
Blood Stock
A+
1
B+
2
O+
37
AB+
8
A-
7
B-
1
O-
10
AB-
32
Total Donors
3
Total Requests
3
Approved Requests
2
Total Blood Unit (in ml)
98

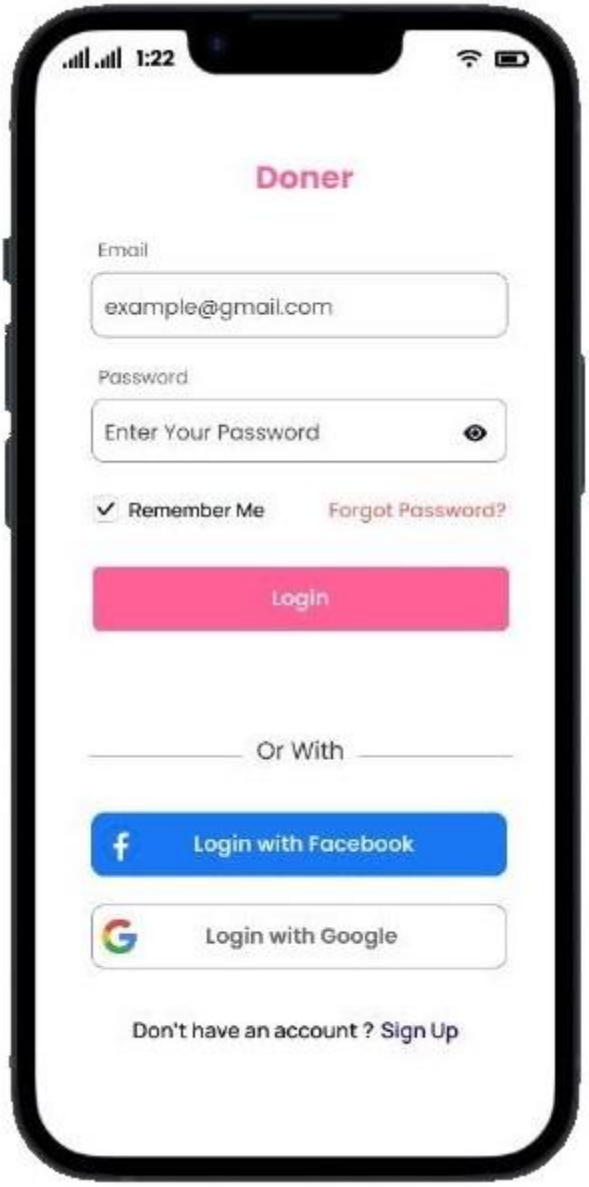

Blood Bank Management
Home
Donor
Patient
Donations
Blood Requests
Request History
Blood Stock
Blood Request History
Patient Name
Age
Reason
Blood Group
Unit (in ml)
Date
Status
Stock Status
Ahmed
20
fever
A+
500
feb. 14,2021
Approved
7 Unit Deducted From Stock
Kamal
24
fever
O+
500
mar. 7,2022
Rejected
0 Unit Deducted From Stock
Abdalla
21
fever
O+
500
june 5,2022
Approved
7 Unit Deducted From Stock

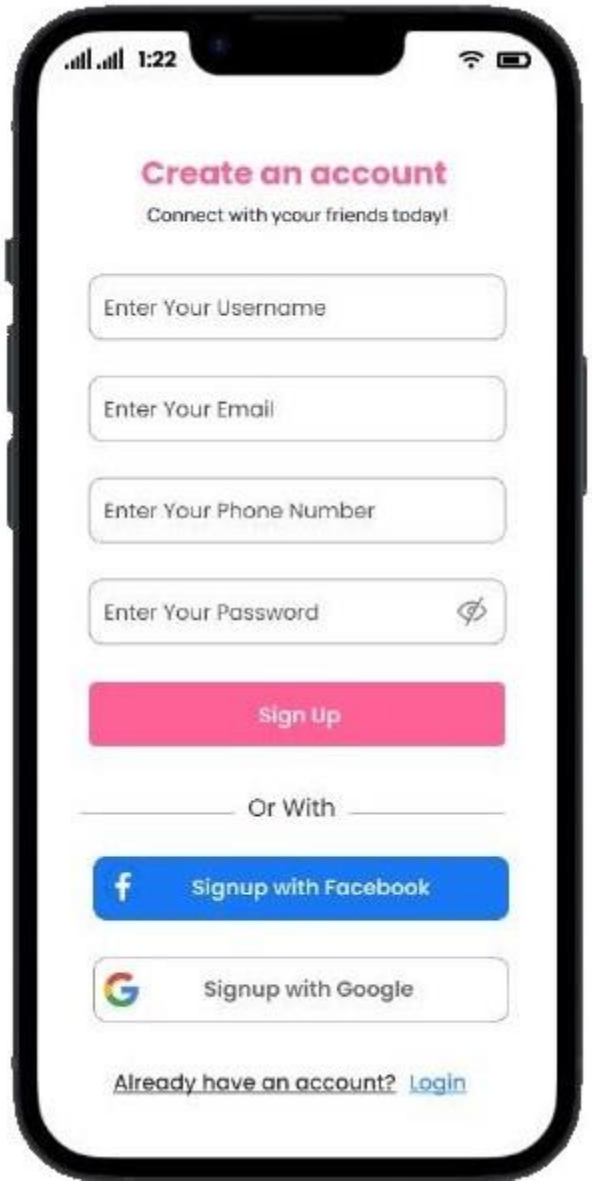

Blood Bank Management
Home
Donor
Patient
Donations
Blood Requests
Request History
Blood Stock
Blood Stock
A+
5
B+
0
O+
0
AB+
0
A-
0
B-
0
O-
0
AB-
0
Update Blood Unit
A+
5
Update

Screens Fegma of the Project:

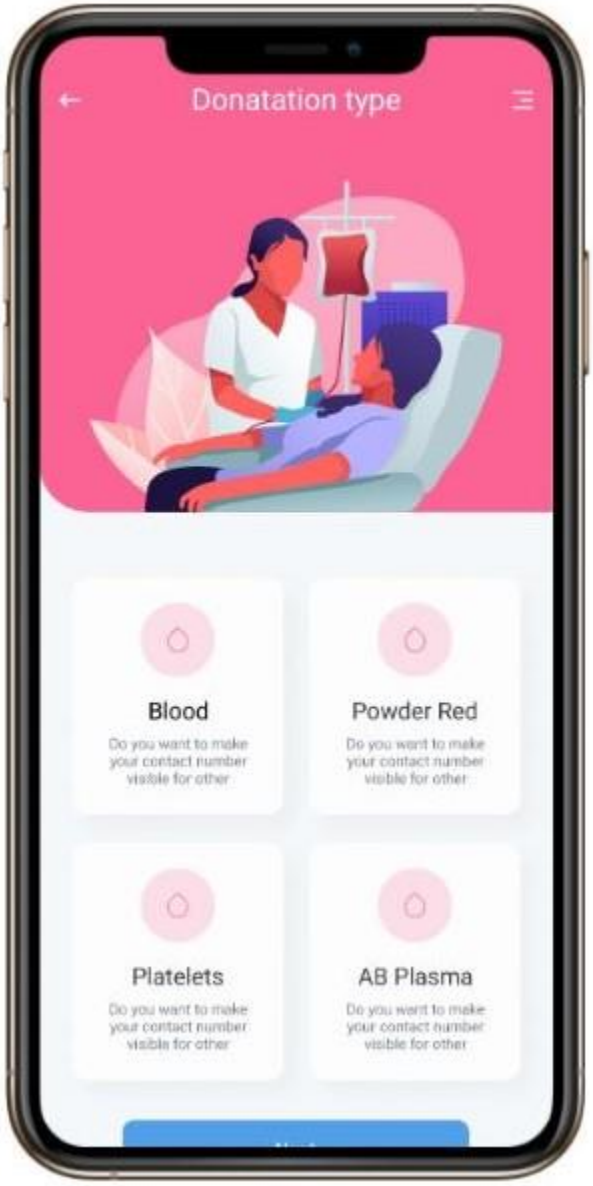

1:22
Blood Bank System
Email
example@gmail.com
Password
Enter Your Password
Remember Me
Forgot Password?
Login
Or With
Login with Facebook
Login with Google
Don't have an account ? Sign Up

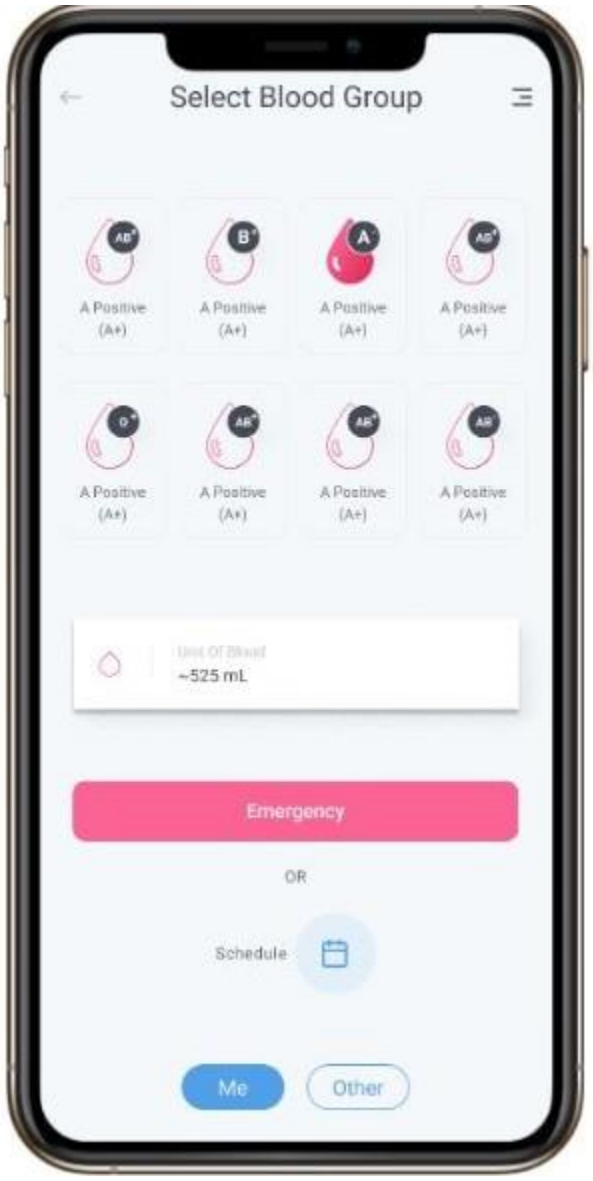

1:22
patient
Email
example@gmail.com
Password
Enter Your Password
Remember Me
Forgot Password?
Login
Or With
Login with Facebook
Login with Google
Don't have an account ? Sign Up


1:22
Doner
Email
example@gmail.com
Password
Enter Your Password
Remember Me
Forgot Password?
Login
Or With
Login with Facebook
Login with Google
Don't have an account ? Sign Up


1:22
Create an account
Connect with ycour friends today!
Enter Your Username
Enter Your Email
Enter Your Phone Number
Enter Your Password
Sign Up
Or With
Signup with Facebook
Signup with Google
Already have an account? Login


Search Nearby Donor...
Next


Donatation type
Blood
Do you want to make your contact number visible for other
Powder Red
Do you want to make your contact number visible for other
Platelets
Do you want to make your contact number visible for other
AB Plasma
Do you want to make your contact number visible for other


Select Blood Group
A Positive (A+)
A Positive (A+)
A Positive (A+)
A Positive (A+)
A Positive (A+)
A Positive (A+)
A Positive (A+)
A Positive (A+)
~525 mL
Emergency
OR
Schedule
Me
Other

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