Blood Bank Management System

CS814 Course Project Report

Submitted by

Battu Vijaya Krishna(202IS008)

Bandi Vamsi Krishna(202IS007)

Department of Computer Science and Engineering

National Institute of Technology Karnataka

P.O Srinivasnagar, Surathkal, Mangalore-575025

Karnataka, India

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Abstract:

Our project is blood bank and donor management system. It will help the JUST medical centre (Hospitals) to collect blood from the donor and store blood in blood bank. When donor or any person needs blood the he can request from the respective available medical centres. For doing this activity we have used HTML, CSS, JavaScript, Bootstrap for frontend, for backend PHP, MYSQL, XAMPP.

This project explores a new dimension to make it more interesting and challenging.

Introduction

Blood is a necessary element in the human body. Without blood, the human body is incomplete. Blood is about 7% to 8% of human weight, according to scientists. Blood is donated in the conventional way by blood donation services or blood bank. Blood bank is defined as an area where blood is obtained as a result of donor blood donation operation that is processed and preserved for subsequent transfusion (maximum twenty-eight days). Many Bangladesh blood banks don't help the online database of blood donors. A huge amount of blood units are donated on average every year in countries like Bangladesh. Approximately five lakh units of blood were registered as donated in Bangladesh, the value of which increased to seven lakhs in the following five years, according to statistical study in 2011. Because of this enormous amount of donor data there must be an efficient and successful way of managing data that could make the online blood donation site a pavestone. It is a clear sign that blood donors rise with population growth. In addition to the blood handling issue, there is a possibility that data is obsolete and the process of data retrieval is also hindered by conventional manual operator's data entry techniques. The project is carried out on an automated blood bank to solve any issue. Factors such as gender, age, last blood donation date and other modern traditional methods, Blood donation frequency per year is not registered, which is of vital importance in this project and used as recruiting criteria for blood donation. The main aim of this project will therefore be to find more effective ways of managing the database of blood banks and blood donors and establish a forum for people connected to potential blood donors in the region. The donors of blood are recruited using a recruiting algorithm that is also a target of this project.

Motivation:

Blood transfusion is an essential component of every country's health care system and patients needing blood transfusion. There is a severe shortage in our country between blood requirements and blood reserves, and as a result, many patients die or suffer unnecessarily because they have no access to blood and blood products. In 2017 nearly 65% of blood transfusions in our country were for children under 5 years of age. Pregnancy-related complications, extreme malaria, and anemia have been due to rising mother's-and-child mortality rates.

Currently, the blood transfusion system is manually used by the blood bank. There are problems with the donor records management with the manual system. The donor records may not be securely held and donor records that fail as a result of human errors or disasters. In fact, mistakes can occur if more than one staff document for the same donor is kept. No centralized voluntary donor database is open. Therefore, if a person is in an emergency, it's really difficult to find blood. The only way to do this is through checking and matching donors manually and by calling each donor. No centralized database for keeping donor information is available too. Each bank has its own donor registers. If a donor makes a donation in different hospitals, no previous records can be traced unless the donor carries the certificate of donation. In fact, the actual amount of each blood type can be tracked in a blood bank and the donor list without an automatic management system.

In order to resolve this problem, we have created the project Blood Bank and Donor System. This is a web project online. You can now easily connect to anything via the Internet service. The online platform is therefore the best choice for our project. The goal of the Blood Bank and Supplier Program is for human well-being to be achieved. We have all the blood information and supplier that you will always need. Many people are here to support you, always ready to give you blood. Look for your blood group. You can support us by registering on our website if you are prepared to donate your blood when required. As a proud member of this community and as a responsible human. You can help a person in need. So, donate blood digitally.

Software Requirement Specification:

The System Requirements Specification (SRS), the requirements specification for a software system, is a complete description of the functionality of the system to be implemented and may include a collection of use cases describing the experiences that users will have with the software.

Software's Used:

1) **XAMPP**
2) **Code Editor (preferable VS Code)**
3) **Browser (preferable Chrome)**

Technologies Used:

This project is mainly based on MySQL database a web application to be developed in PHP, HTML, CSS, JavaScript, Bootstrap.

About System:

This blood bank is in php, JavaScript, bootstrap, and CSS. About the features of this system, it contains the hospital user and the blood receiver user. All the managing of donor's requests of blood need, and editing places are from the hospital section. While the receivers can request for the required blood sample. The project makes a convenient way for the hospitals and the person who needs blood to communicate with each other.

Here, the skills have been used like HTML, CSS, Bootstrap, JavaScript as a frontend, PHP as a backend and MYSQL for the database. The design of the system is pretty simple so that the user won't get any difficulties while working on it.

How To Run this Project:

To run this project, you must have installed a virtual server i.e. XAMPP on your pc. Put the blood bank source code into C://xampp/htdocs/ BloodBankManagementSystem

1)Create folder in C:/xampp/htdocs/ as " BloodBankManagementSystem "

Put the downloaded code into C:/xampp/htdocs/BloodBankManagement

2)How to Run this Project:

To run this project, you must have installed a virtual server i.e. XAMPP on your pc.

Put the blood bank is in PHP source code into C://xampp/htdocs/

1)Start the XAMPP server first

2)Open browser and go to URL http://localhost/phpmyadmin

3)Then click on databases tab

4)Import the whole database already existed in the project folder "sql/bloodbank.sql"

5)Dummy credentials are created for testing purpose

These are dummy credential already exists in database

1) Hospitals(admin)

please Login credentials already existed in database:

email: hospital1@gmail.com

passwd: hospital1

email: hospital2@gmail.com

passwd: hospital2

2) Blood Receivers(users)

email: battu@gmail.com

passwd: battu

email: vamsi@gmail.com

passwd: vamsi

6)To open the website locally "http://127.0.0.1/BloodBankManagementSystem/ "

7)If anyone wants to create own credentials that also can be done using "Registration" option based on type of user you are. In this Application 2 roles are there in this project.

(i). Hospital-Admin

(ii). Receiver

8)After the Registration you have accesses in the application based on, he/she Role.

This application is implemented based RBAC Policy (Role Based Access Control System).

Types of users & Functionality:

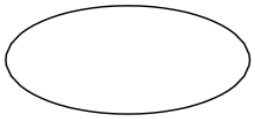
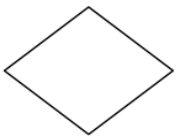
There are two types of users in this application

1) Hospital-admin 2) Blood Receiver.

Hospital-admin will add the blood samples when new donors given some blood. Also, Hospital-admin can accept/reject the requests for blood samples from the Blood Receivers. These activities are updated to backend database tables when any changes happen.

ER Diagram:

Entity-Relationship Diagram is a graphical representation and relationship between entities. It describes the relationship between data. An entity is a piece of data— an object or a definition that stores data about. Whether data is exchanged between organizations is a partnership. There are three main components in the E-R diagram:

Symbol	Name	Description
	Entity	An entity can be any object, place, person or anything.
	Attribute	An Attribute Describes a property or characteristics of an entity.
	Relationship	A Relationship Describes relation between entities.

Database Management System (DBMS):

1)Hospitals Table (hospitals are admin here):

Name	Type	Description
Id	Integer	Id of hospital
hname	Varchar	Name of hospital
hemail	Varchar	Email id of hospital
hpassword	Varchar	Password of hospital
hphone	Varchar	Mobile no of hospital
hcity	Varchar	City of hospital

2) Receivers Table (Donors or Needy People here):

Name	Type	Description
id	Integer	Id of receiver
rname	Varchar	Name of receiver
remail	Varchar	Email id of receiver
rpassword	Varchar	Password of receiver
rbg	Varchar	Blood group of receiver
rcity	Varchar	City of receiver

3)Blood Info Table (Stores info about blood):

Name	Type	Description
bid	Integer	Id to represent blood packets
hid	Integer	Host id i.e which hospital having blood
bg	Varchar	Blood group

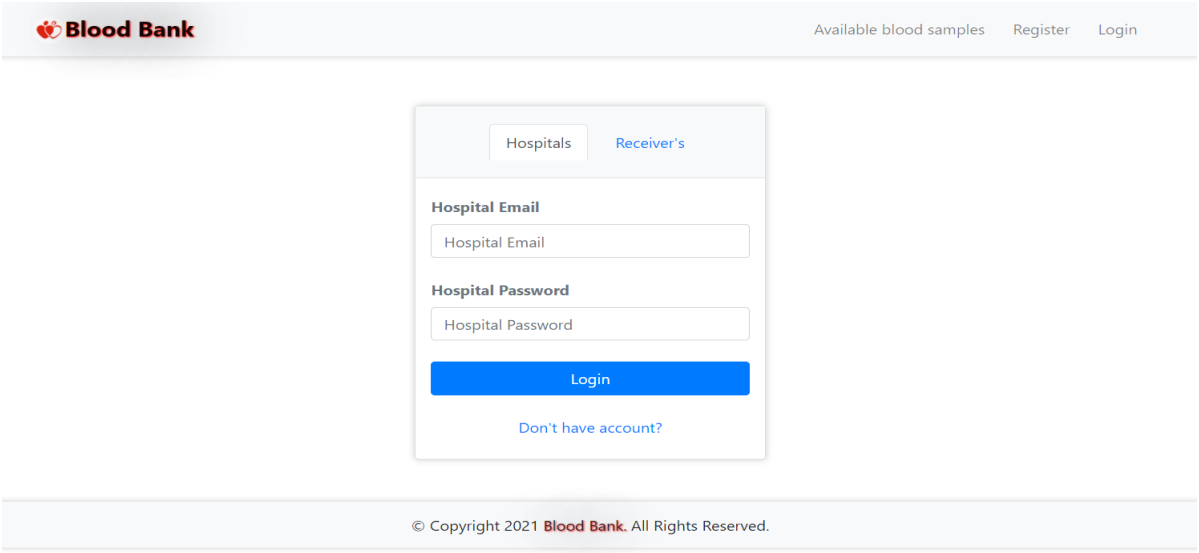
4)Blood Request Table (Needy people will request for blood):

Name	Type	Description
Reqid	Integer	Id to represent this table
Hid	Integer	Host who posted blood available
Rid	Integer	Receiver who wants that hosted blood
Bg	Varchar	Blood group
Status	Varchar	Host is accepting the request or decline the request for blood

Front End:

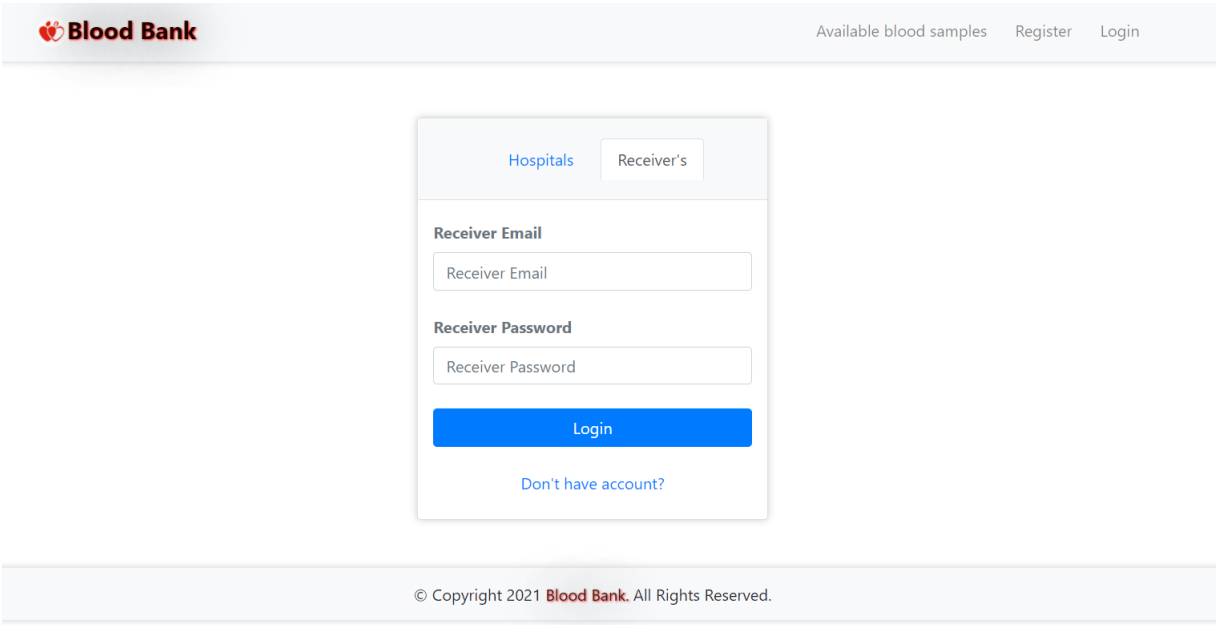
1) Hospital Login:

This is JavaScript based login page. In the code we perform MYSQL Database request to match admin email and password for login.



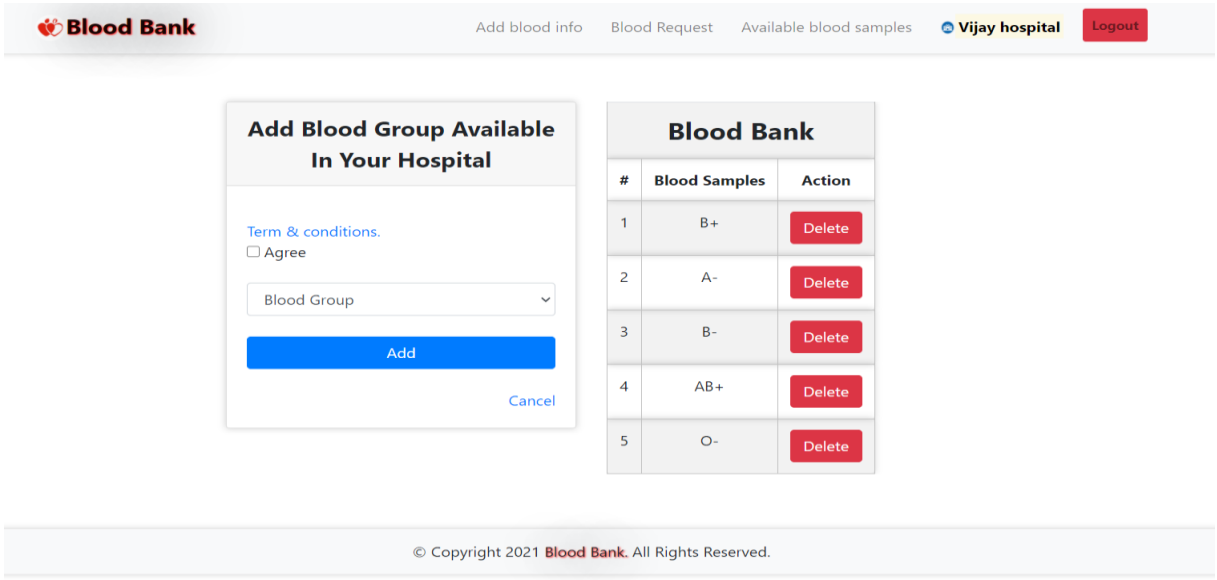
2) Receiver's Login:

This is JavaScript based login page. In the code we perform MYSQL Database request to match admin email and password for login.



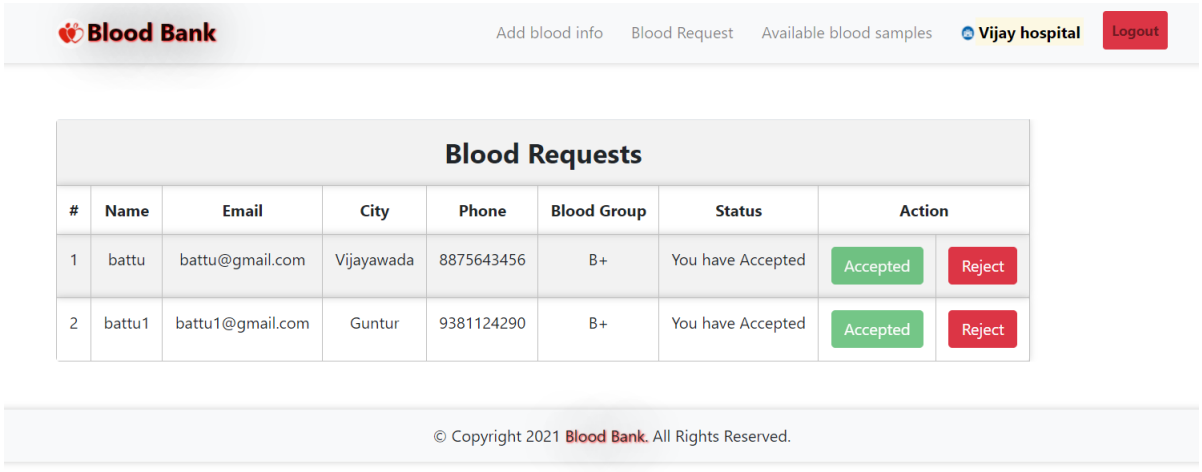
3)Add Blood Group (by hospital admin):

In this section, here the add blood group page. In here, Admin of the respective hospital can add blood group to Available blood samples in the organization(hospital) by following Terms and Conditions.



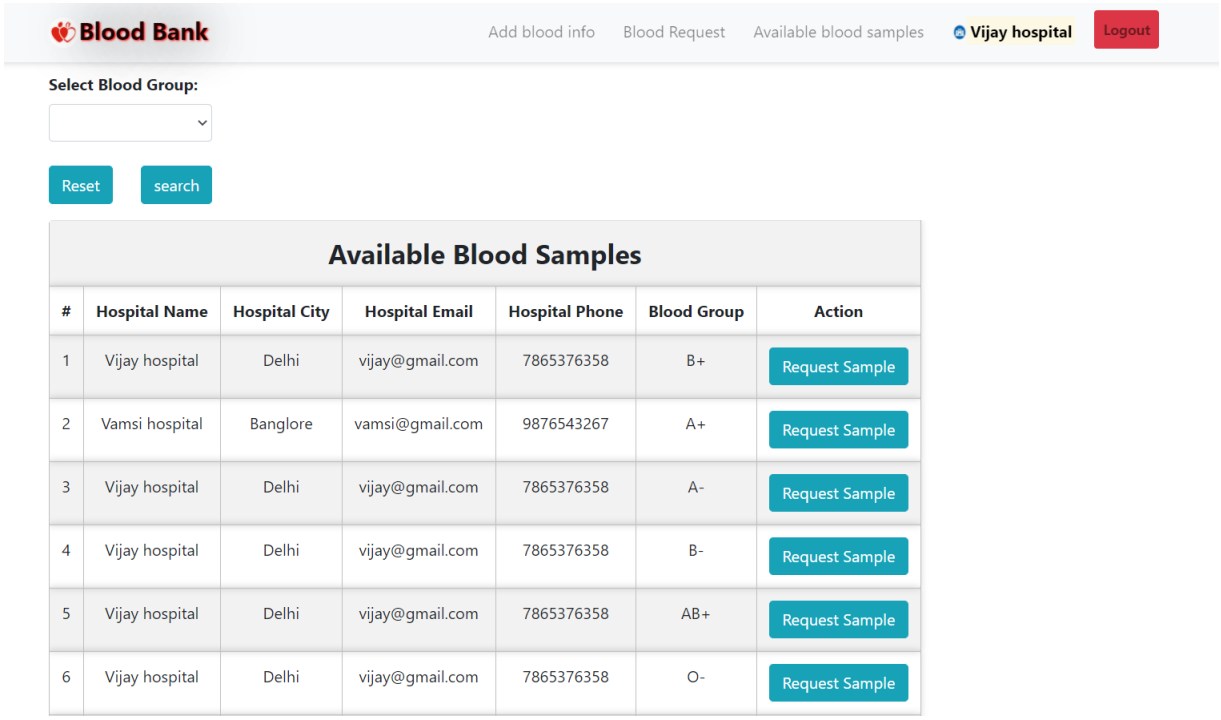
4)Receiver's Blood Request to Hospital's (admin):

Here respective hospital admin will accept or reject the receiver's blood request based on the available blood samples in that hospital.



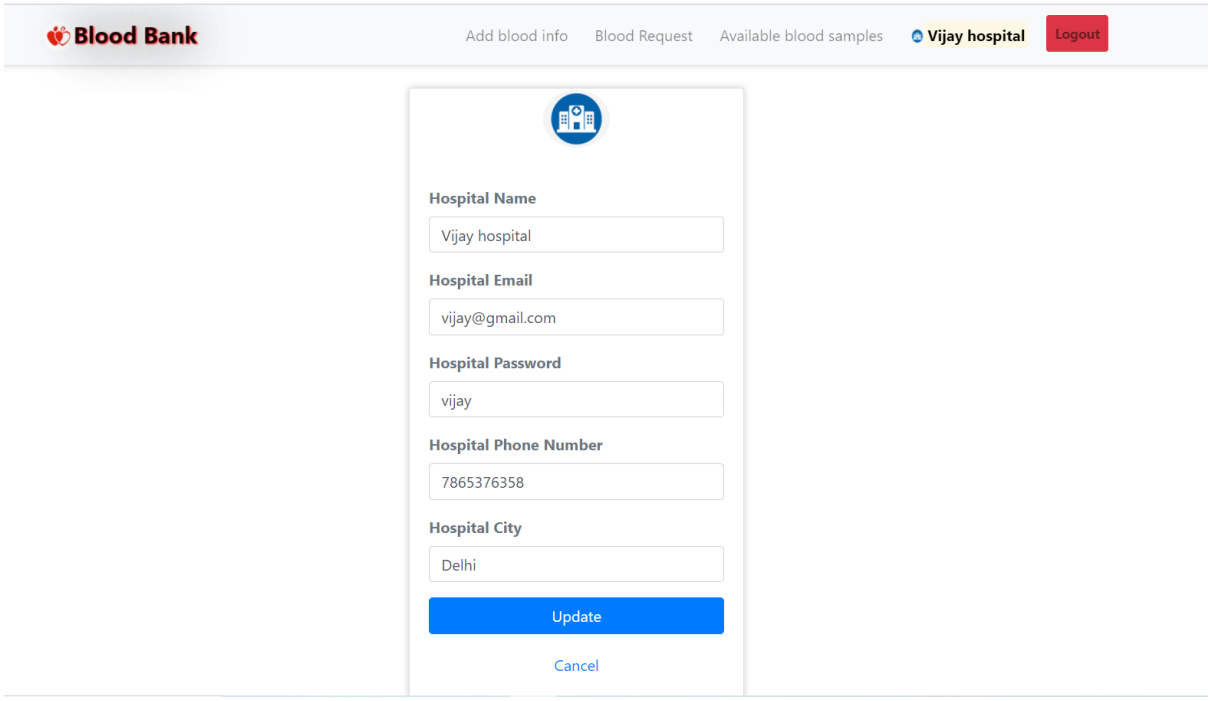
5)Blood Sample's available list:

Here admin of respective hospitals can see the available blood samples in their organization (Hospital).



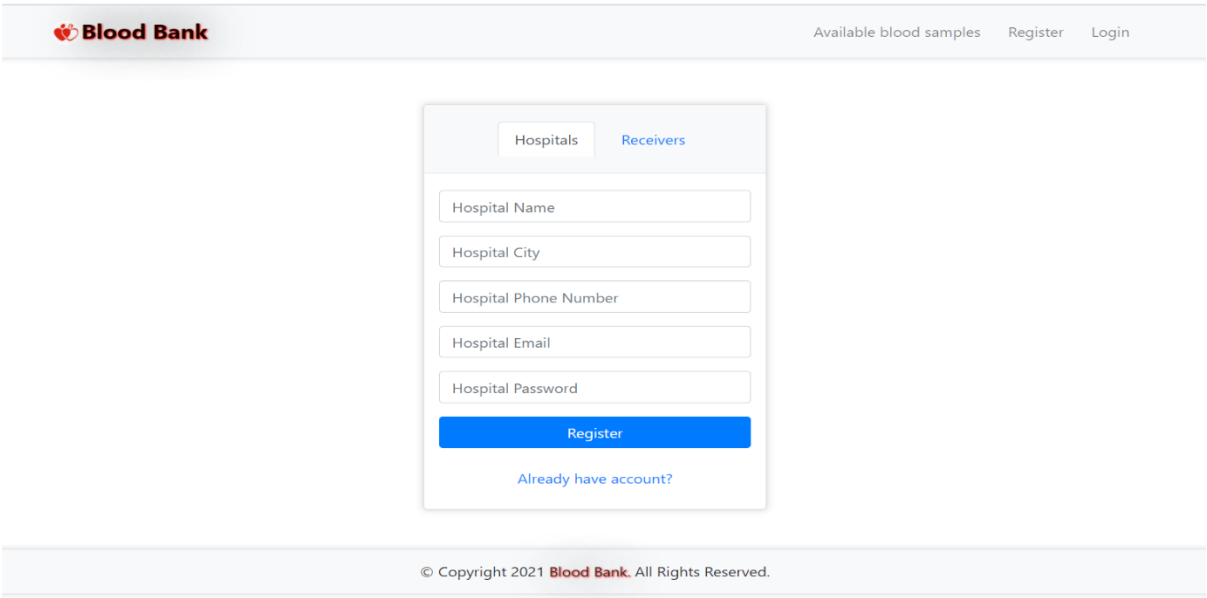
6)Update Credentials of Hospital admin:

Here if admin of hospital can change details any time it will be reflected in backend using php, MySQL.



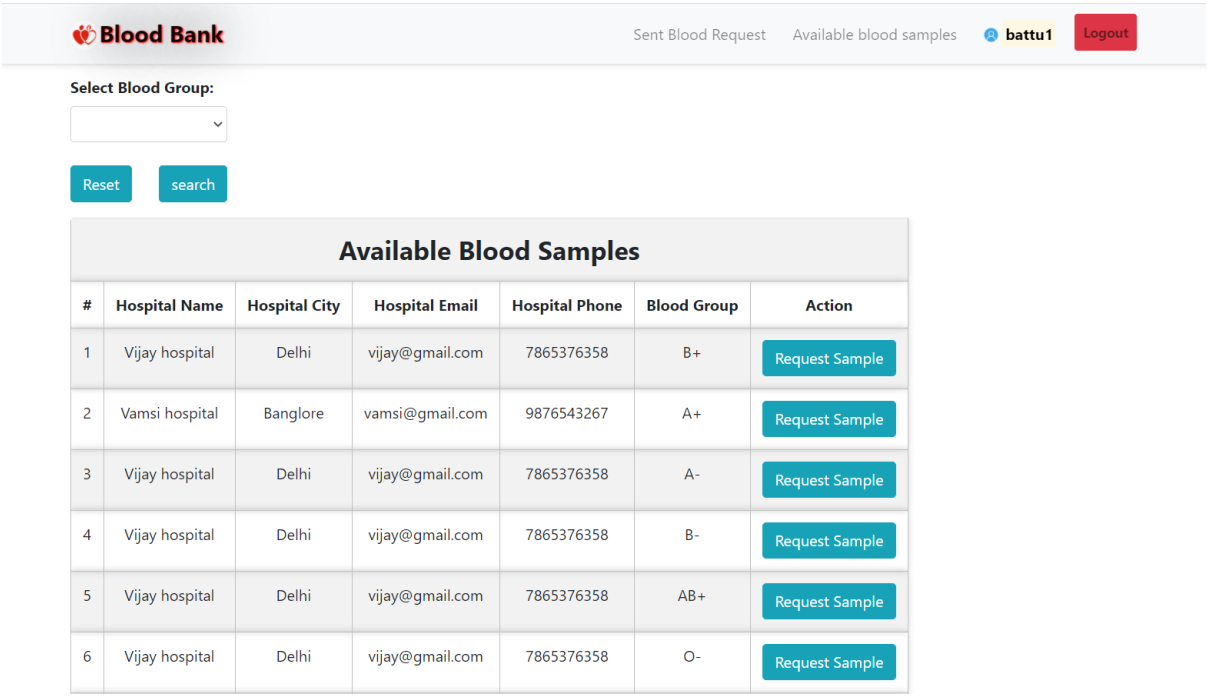
7)Registration Page for both Hospital admin, Receiver:

Here both hospital admin, blood needy person must register for further details.



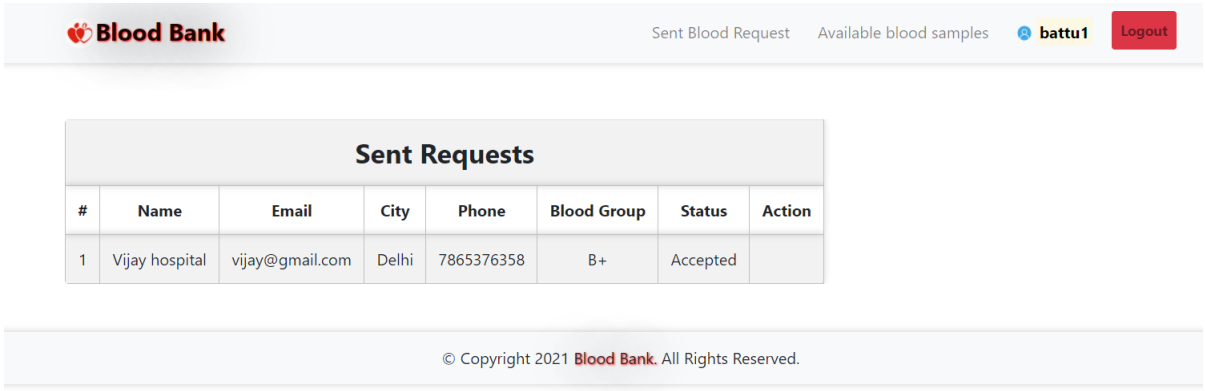
8)Receiver Page:

Here before requesting blood from acquired hospital it shows which hospitals are having available blood samples. If receiver need some blood sample, he can request the hospital right away.



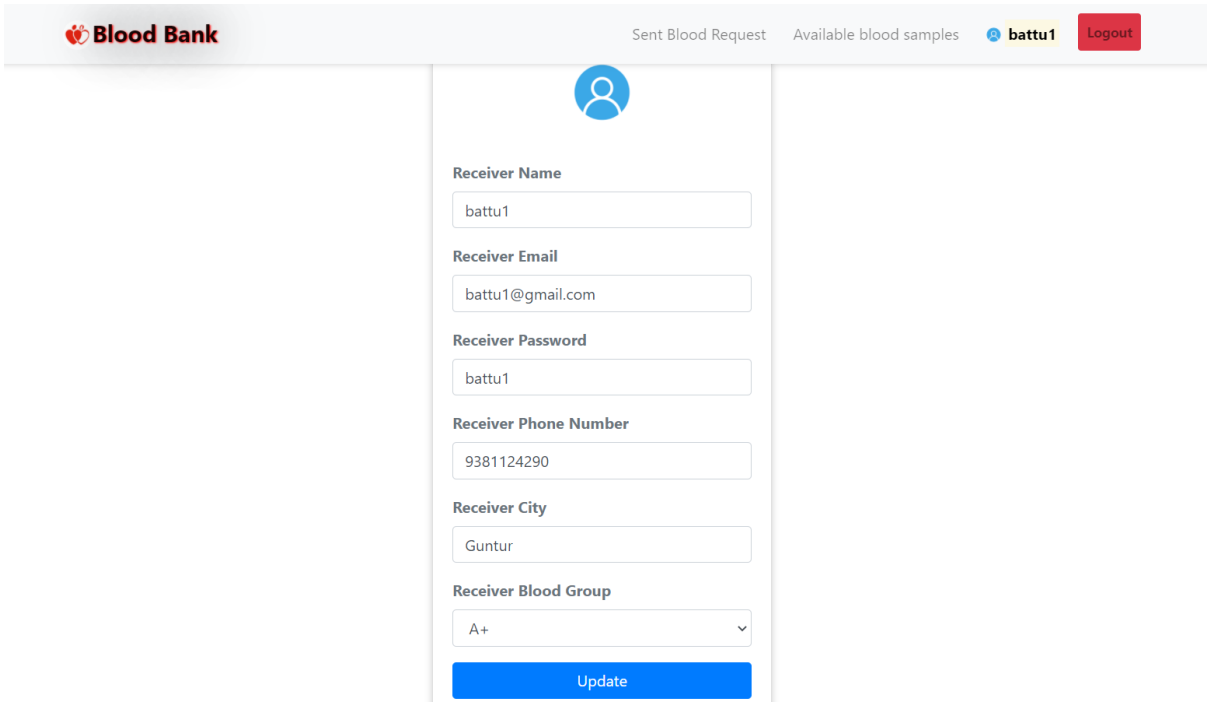
9)Receiver’s Blood Requests to Hospital:

Here in receiver’s page, it shows what are all the hospital he/she requested for blood samples.



10)Receiver’s Credentials Update:

Here receivers can update their details.



Authorization

Need for RBAC based authorization:

Lack of access control in organization it can be hard to give users what permissions & functionalities they need based on their position. So, in order to separate different users in the organization based on the position & what they suppose to do in the organization we need RBAC because it restricts network access based on person's role within an organization. The roles in the RBAC refer to the levels of access that employees have to the network.

Person's are only allowed to access the information necessary to effectively perform their job duties. Access can be based on several factors such as authority, responsibility. Access to resources of the organization can be limited to specific tasks such as the ability to view, create or modify a file.

So, in this BloodBankManagementSystem we need RBAC because to give separate functionalities to Hospital-admin and Blood-Receivers we need to give different access like admin & users.

Components of RBAC present in this application:

In this Blood Bank Management components of RBAC policy are Hospital-admin and Blood-Receiver(users). Based on respective role in the application specific functionalities are shown when that type of user login to the application.

If a user is Hospital-admin then the functionalities in the application shown are about his/her hospital available blood samples list, Blood samples requests from the Receivers, adding new blood samples to the list if donor given some blood sample, Profile Updating options are available (hospitals table in database).

If a user is Blood-Receiver(user) then the functionalities in the application shown are about his/her to sent blood request, available blood samples, he/she can request for required blood samples already existed in the list (receivers table in database).

CONCLUSION

Conclusion:

This project gives me more than enough opportunity for a web-based project to design, code, measure and execute. This has helped to implement the different software engineering and database management principles Concepts such as data integrity. This has also helped me find out more about JavaScript, HTML, CSS, MYSQL, PHP and Personal Web Server.

Future Enhancement:

In this Application only Hospital admin, Receivers are only included in future I will add the Donor's functionality in order to donate the blood to nearest donor's city. Since there were a small amount of contact information, it may be difficult for some people to get blood quickly. I would like to gather more information about contacts in other cities and villages and will provide people with much more support to connect all of us with morality.