

# **ONLINE BLOOD BANK MANAGEMENT SYSTEM**

**BY**

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This Report Presented in Partial Fulfillment of the Requirements for the  
Degree of Bachelor of Science in Computer Science and Engineering

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**JANUARY 2023**

## **APPROVAL**

This Project titled “**ONLINE BLOOD BANK MANAGEMENT SYSTEM**” submitted by **Sajib Kumar Dhali** to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial Fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on.

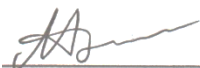
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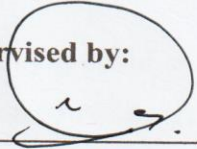
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## DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Dr. S. M. Aminul Haque**, Associate Professor, Department of CSE Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

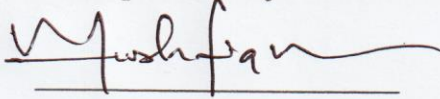
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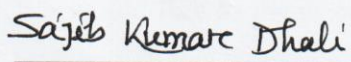
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Finally, we must acknowledge with due respect the constant support and patients of our parents.

## **ABSTRACT**

Blood is a continuously circulating fluid that carries nutrients, oxygen and waste to the body. Blood is mostly fluid, with numerous cells and protein is suspended in it. Thicker blood than pure water . The average human has about 5 liters of blood. It forms an integral part human life, as it performs one of the most important functions is to transport and remove the oxygen needed by various parts carbon dioxide from the human body. This knowledge about the importance of human blood plays a very important role in health care centers in reviving many patients such as accidental, gunshot or operation theatre. The Department of Transfusion Medicine plays a very important role in separating blood components like plasma, platelets, packed red cells. Each element present in blood plays a specific role. It has fewer patients hemoglobin levels require transfusion with packed red cells, and patients with low platelet counts require transfusion with platelets, and since plasma contains clotting factors that can be useful during operations and for many other patient needs. The Department of Transfusion Medicine plays a very important role in meeting all blood requirements for all healthcare systems. To create blood bank management system is introduced to make things more accurate and manage blood requirements more systematically. This system saves information of blood donors as well as blood stored in various blood banks and hospitals. So that whenever blood is needed, they can have access bleed easily.

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# CHAPTER 1

## Introduction

### 1.1 Introduction

We all know about the need for blood so it has become very important that when we need it, we meet its needs in the shortest possible time. So now this blood bank system will be easier to do blood and its products in nearby areas. This system also updates the data periodically to avoid any mistakes. Blood bank management system has a database which contains everything blood donor and blood bank information so the availability of the system whenever a recipient blood is needed Checks all corresponding blood databases and acts accordingly. This (Fig.1) is an example general blood bank management system. The following is true a general system seems to work but many researchers have made many advances in their systems to make this process easier and more efficient I have looked at different types of systems and some of them are explained in this paper

### 1.2 Motivation

Both my father and mother are engaged in the medical profession and have always devoted themselves to the service of humanity. My sister is also involved in medical profession and she is also trying her best to help people. If you think about it, I am an engineering student, because of which I cannot stand by the side of the treatment of common and poor people. There are many people who die because they don't get blood on time. We have thought about all these aspects and created this(Online Blood Bank Management System) web based application. The main purpose of this system is to keep an organized record management of blood. Reports like Donor niceties, Blood Collection, Screening, material preparation, store blood, request for blood , compatibility, blood issues, monthly statistics records are stored by the database.

### **1.3 Objective**

It is an online application that allows you to access information about blood that is easily scalable and adaptable to meet the complex needs of donors, blood recipients and blood bank healthcare is the key facilitator of the field. The main objective of this system is to keep an organized record management of blood. Reports like Donor niceties, Blood Collection, Screening, material preparation, store blood, request for blood , Compatibility, Blood issue, monthly statistical records are stored by the database.

### **1.4 Expected Outcomes**

Mainly I create this system to help people, so that they can send requests for blood, can arrange blood easily, and feel free to help those who need blood . This system allows other people to request blood. It helps a lot to donate blood to those who can directly request and those who cannot use the system directly. And those who need blood ( very emergency situation) can send a special message here. Besides, they will get another opportunity here, which is that they will be able to find out the regular blood donors and contact them directly without having to fill the forms for the organization's blood, That's why it will take less time to get their blood.

### **1.5 Feature**

The online blood bank management system asks the users to fill a form where they have to fill the form with the required data or information which goes to the admin panel and then the admin panel work to fulfill their demands and provide them with quality service starts the scene. They can request blood here for emergencies. That will appear in a message form in front of the admin panel, and immediately the admin panel will start working to help them.

#### **The Common features of the project:**

1. This system will be very convenient for a user to use.

2. Reduce costs.
3. People from any part of the country can take services.
4. Can apply for blood at any time.
5. Those who are available to donate blood can provide that information here
6. Secure all data.
7. Detect easily active and inactive donors.
8. Blood donation history etc.

# CHAPTER 2

## Background

### 2.1: Introduction

Our system can be an interactive Internet site that can be operated with the help of a PC, smart phone, tablet, etc. A one-of-a-kind user can be a unique individual to handle. When blood is urgently needed, occasionally we cannot collect blood or donors. Our challenge is to help people in this distressing situation by finding blood donors in the nearest area. Our work will help us procure all the blood donor information.

### 2.2: Related Works

I have researched documents related to blood donation. We have tested the performance of some blood donation websites. This application is incredibly decorated with functionality. It can be equipped with many technological features.

Some application were followed:



Figure 2.1: Blood donation system list

## 2.2.1 Common features of these application

- Registering as a donor.
- Find a Donor.
- Blood requests.

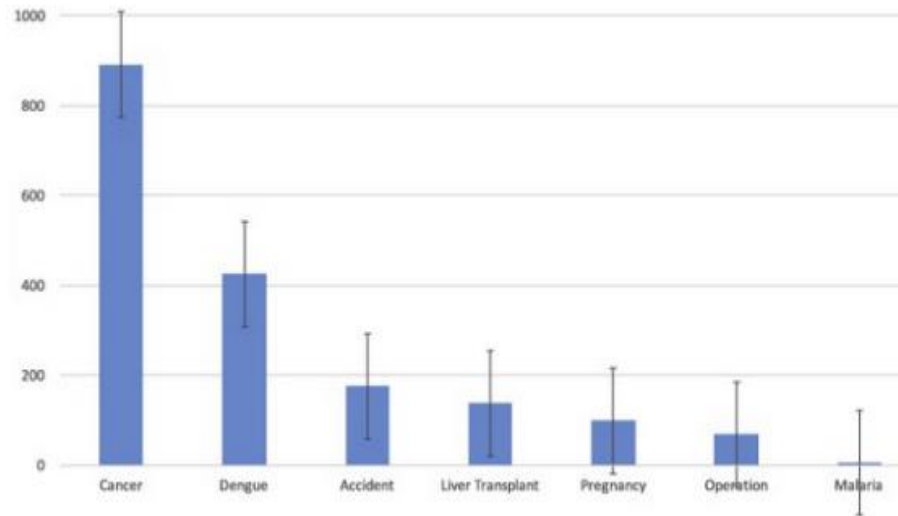


Figure 2.2: The reason for the need of blood.

### 2.2.1.1 Register as Donor

The data is registered by the processing machine. Any man or woman can sign up on this machine. The username and password described by each person are entered for the login of the check in information. Email must be specific. First of all, the blood donor should give his name, then his father's name, his gender, his date of birth, his blood group, his body weight, valid email id, which country he is from, which state he is from, city. He is coming, in the area, permanent address. , should mention his pin code or post code, mention his two contact numbers which are open all the time, whether he is a voluntary blood donor or not and whether he is a new blood donor or not, finally upload his photograph. If a new donor wants to donate blood, he/she has to fill a complete form. And the donor should ensure that the information is 100% correct. If there is any mistake in the information, he will stop providing or receiving



the service. So the information should be authentic. Our system is designed in such a way that a donor can fill the form with his/her completeness so that we can ensure the service. Below are the fields that need to be filled in the bus system on our website.

The following data are entered in the register, as applicable:

Name

Father Name

Gender

D.O.B (Date of Birth)

Blood Group

Body Weight

Email ID

Country

State

City

Area

Address

Pincode/Postcode

Contact-1

Contact-2

Voluntary Donor(optional)

New Donor(yes/no)

Upload Photo

We are providing a demo of registration as a donor below:

**JOIN AS BLOOD DONOR**

**Name**  
Full Name

**Father Name**  
Father Name

**Gender**  
Select Gender

**D.O.B**  
YYYY/MM/DD

**Blood Group**  
Select Blood

**Body Weight**  
Weight In Kgs

**Email ID**  
Email Address

**Country**  
Select Country

**State**  
Select State

**City**  
Select City

**Area**  
Insert Area

**Address**  
Full Address

**Pincode/Postcode**  
Insert Pincode/Postcode

**Contact-1**  
Contact No-1

**Contact-2**  
Contact No-2

**Voluntary Donor**

**New Donor**  
No

**Upload Photo**  
Choose File No file chosen

I have read the eligibility criteria and confirm that i am eligible to donate blood.

I agree to the Term and Conditions and consent to have my contact and donor information published to the potential blood recipients.

**Registrar Now**

Figure 2.3: Donor registration demo

### 2.2.1.2 Need Blood

These are often recipients who always request a blood donor online. When blood is needed in an urgent situation, a blood donor should be sought. There, blood donors are matched and a request is sent via SMS with important information.

Figure 2.4: Registration for need blood

### Need Blood

Search Text

S.No.	Name	Gender	Blood	Unit	Hospital	Reason	R-Date	Status	Update
1	oiuhifd	Male	A+	2	ertreyteyeyt	ewrtertwrewtetret	2022-12-07	Completed	View
2	ariful	Male	O+	1	hhhhhhhhhhhhhhhhhhhhhh	operation	2022-12-02	Completed	View
3	Kiron Mia	Male	O+	1	Pg Hospital	Accident	2023-01-30	Completed	View
4	Md Shuvo	Male	B+	1	Dhaka Medical College Hospital	Accident	2023-02-08	Pending	View

Figure 2.4.1: Donor search box.

### 2.2.1.3 Search Blood

Search results are expected for a quick search of multiple elements. Users search for blood on this application gadget by pressing when people want blood.

**Search Text**


S.No.	Name	Gender	Blood	City	State	Contact-1	Contact-2	View	Delete
1	Sajib Dhali	Male	O+	Terokhada	Khulna	01919864263	01317325729	 View	 Delete
2	Dipon Saha	Male	A+	Ashulia	Savar	01717563218	01620124562	 View	 Delete
3	Adil Hasan	Male	A-	Ashulia	Savar	01741329563	01958126358	 View	 Delete
4	Akash Mia	Male	B+	Ashulia	Savar	01765713285	01852653214	 View	 Delete
5	Ankon Malakar	Male	O+	Terokhada	Khulna	01765231475	01317452520	 View	 Delete
6	Ariful Islam	Male	O-	Lohagora	Norail	01756325217	01952364521	 View	 Delete
7	Dipon Saha	Male	AB+	Mollahat	Bagerhat	01769563285	01956325811	 View	 Delete
8	Naimur Rahman	Male	AB-	Mollahat	Bagerhat	01765253214	01865214175	 View	 Delete

Figure2.5: Donor search box.

## 2.3 Comparative Studies

Our running software is not the same as existing utilities. Customers can search for a blood donor without registering. All certified registrants will have the opportunity to percentage their requests through this application. The software will help provide vital request information through cellular SMS/e-mail notification to nearby blood donors or recipients.

## 2.4 Challenges

- The user needs to update their profile after registration.
- A signal will be given to the person who donates blood.
- Registration is required to send message for blood.

## **CHAPTER 3**

### **Requirement Specification**

#### **3.1 Business Process Modeling**

Commercial Enterprise System Modeling is an engineering tool that explores the dynamics of an agency's representative approach, and the process of running it. This is done with the help of professional analysts, who provide understanding modeling systems. Other version changes in it can be simultaneously grown from event logs using process mining tools.

#### **3.2 Requirement Collection & Analysis**

Here are some of the requirements that accrue when executing a software program or collecting statistics. The collections required are given below:

- To collect problems for users to find blood.
- User information is required.
- Account profile settings must be edited.
- Registration is required to use this web page.
- A valid mobile number is required for login.
- User's personal opinion must be collected.

#### **3.3 Use Case Diagram**

A blood donor who wants to donate blood or take blood, first has to visit the online blood bank manager system webpage. Then if he wants to donate blood, he has to go to the field called service, there is a file called donor registration, which contains all the necessary information. Fill in and submit. Now if a person needs his blood then he needs to go to the field called need blood and fill in all the information there. Care should be taken to ensure that all information is correct. The data applied here is stored in the database. Which an admin will see and take necessary action. If a person needs

blood, then he can collect blood according to his need by going to the field called search blood in addition to registration. Apart from this, if someone needs emergency blood at the time of need, he can directly message the admin. Admin can take necessary action after seeing that.

- Admin can manage donor's info and status , recipients info and status ,monitor all records and record all transaction.
- Donor can see his/her information and record and record his/her transaction.
- Recipient can record all transaction.
- All information should authentic to ensure a good service.

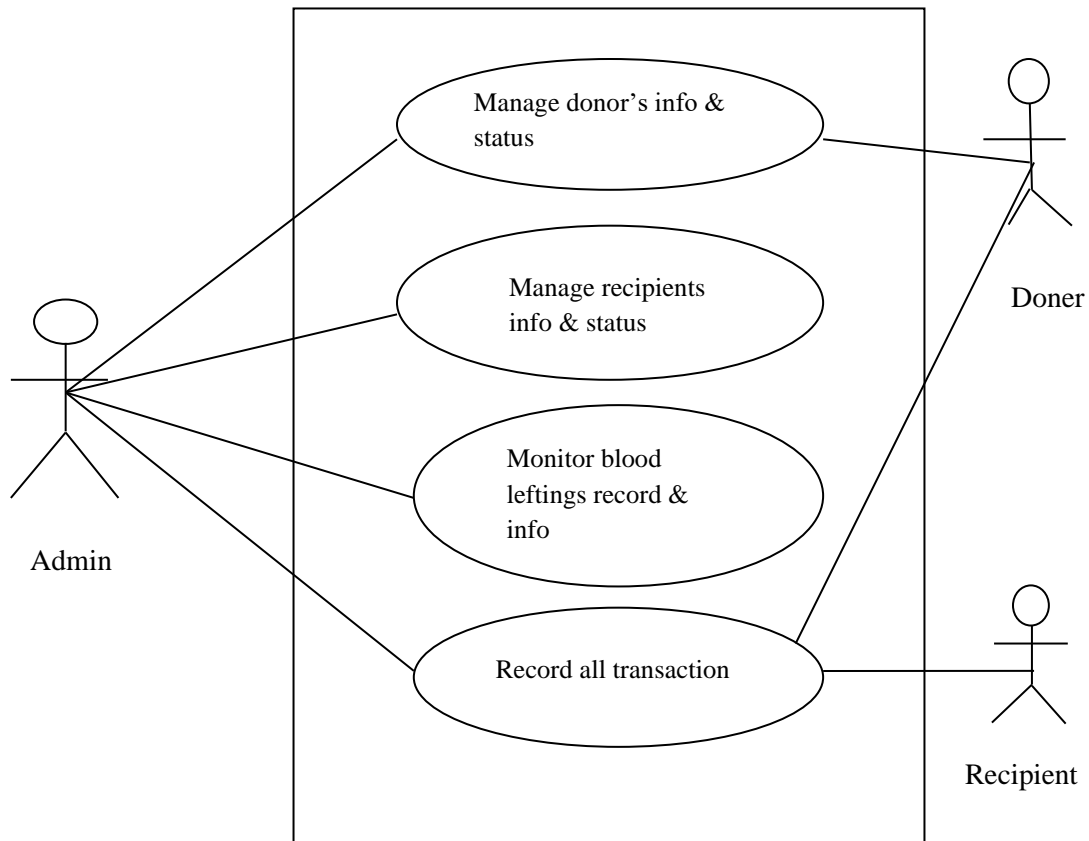


Figure 3.1: User Use Case diagram.

### 3.4 Detailed Use Case

The details use case diagram from our use case diagram discern:

Table 3.1: Use case description of Registration

Use Case #01	Register
First Actor	User, donor
Second Actor	System
First Condition	Go to the website
Scenario	<ol style="list-style-type: none"><li>1.Name</li><li>2.Father Name</li><li>3.Gender</li><li>4.D.O.B (Date of Birth)</li><li>5.Blood Group</li><li>6.Body Weight</li><li>7.Email ID</li><li>8.Country</li><li>9.State</li><li>10.City</li><li>11.Area</li><li>12.Address</li><li>13.Pincode/Postcode</li><li>14.Contact-1</li><li>15.Contact-2</li><li>16.Voluntary Donor(optional)</li><li>17.New Donor(yes/no)</li><li>18.Upload Photo</li></ol>
Last Condition	Registration successfully completed or failed.

Table 3.2: Use case description of Login

Use Case #02	Login
First Actor	Admin
Second Actor	System
First Condition	Authentic information
Scenario	<ol style="list-style-type: none"> <li>1. User Name</li> <li>2. Password</li> </ol>
Last Condition	<ol style="list-style-type: none"> <li>1. Login successful or failed.</li> <li>2. Display Dashboard</li> </ol>

Table 3.3: Use case description of search blood.

Use Case #03	Search Donor
First Actor	User
Second Actor	System
First Condition	Find blood group and location
Scenario	<ol style="list-style-type: none"> <li>1. Login into the website.</li> <li>2. Find Blood and Address.</li> <li>3. Press “enter” switch.</li> </ol>
Last Condition	<ol style="list-style-type: none"> <li>1. Required result are showing.</li> <li>2. Empty box(if not found)</li> </ol>



### 3.5 Block Diagram

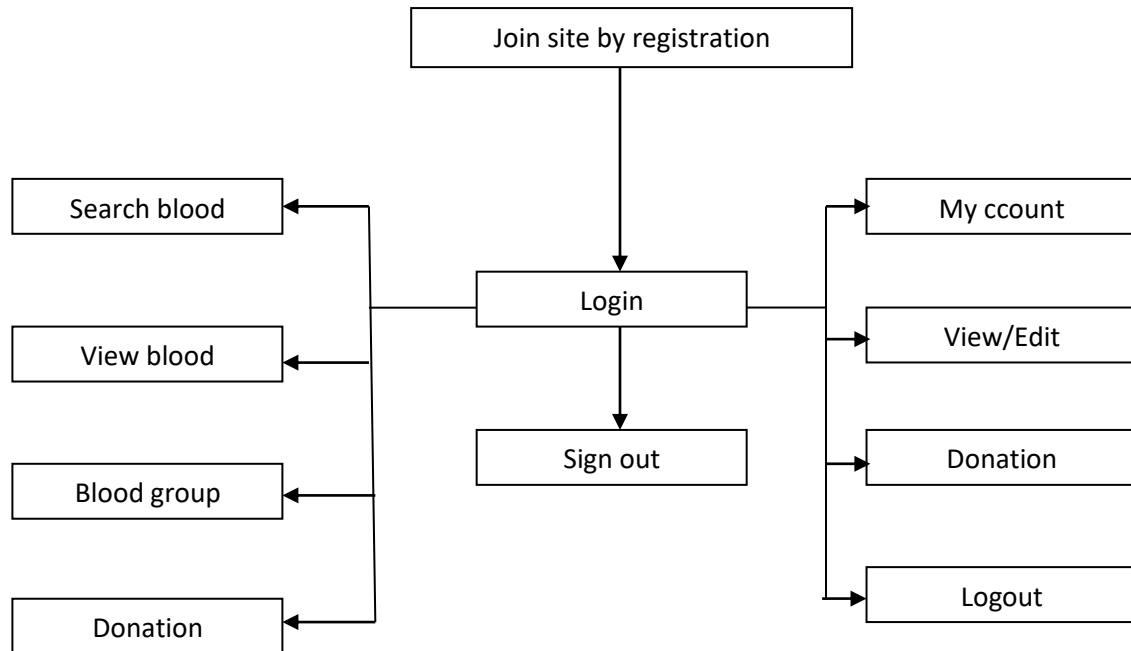


Figure 3.2: Block Diagram

A donor who wants to donate blood or take blood, first he has to visit the net page of the web blood bank supervisor system. Then if he desires to donate blood, he has to visit the field referred to as service, there may be a report called donor registration, which incorporates all of the necessary statistics. Fill in and post. Now if someone needs his blood then he wishes to go to the field called need blood and fill in all of the records there. Care ought to be taken to ensure that every one information is correct. The information carried out right here is saved within the database. Which an admin will see and take important motion. If someone wishes blood, then he can gather blood in step with his want via going to the field known as seek blood similarly to registration. Aside from this, if someone needs emergency blood on the time of need, he can directly message the admin. Admin can take necessary movement after since.

### 3.6 Activity Diagram

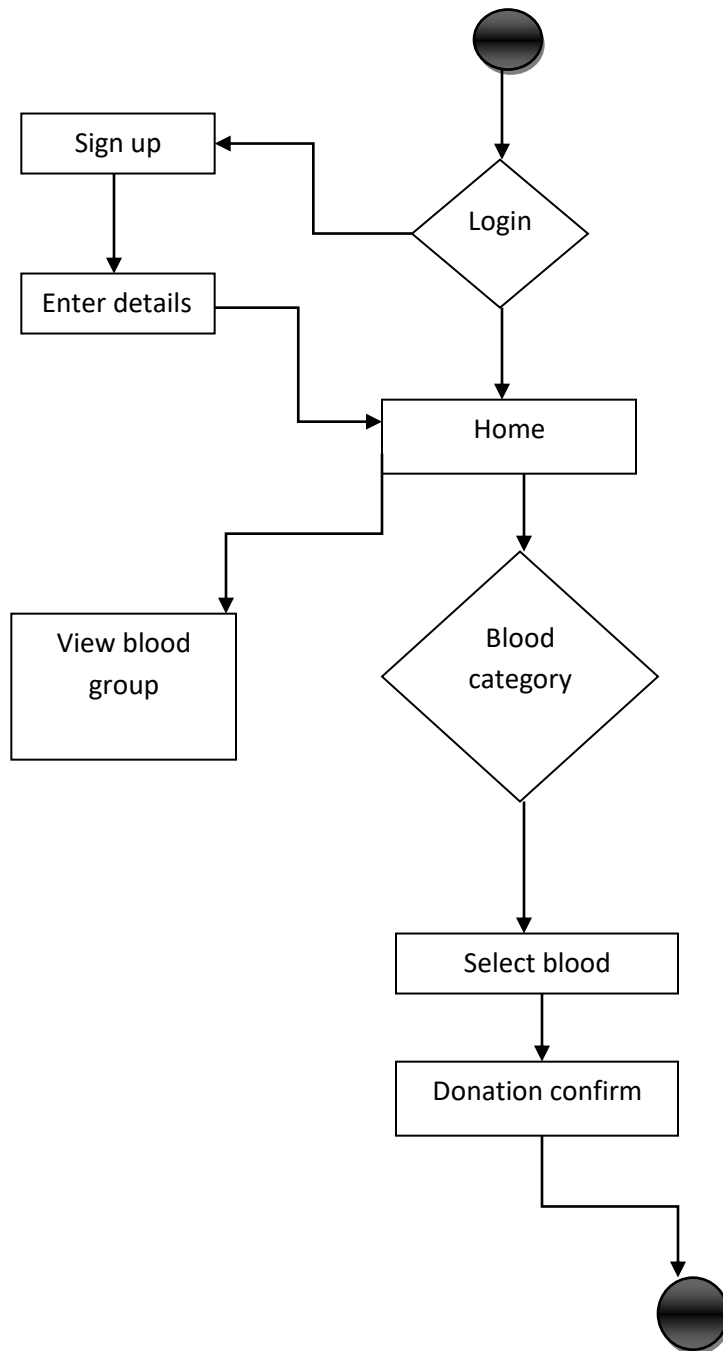


Figure 3.3: Activity Diagram

### 3.7 Class Diagram

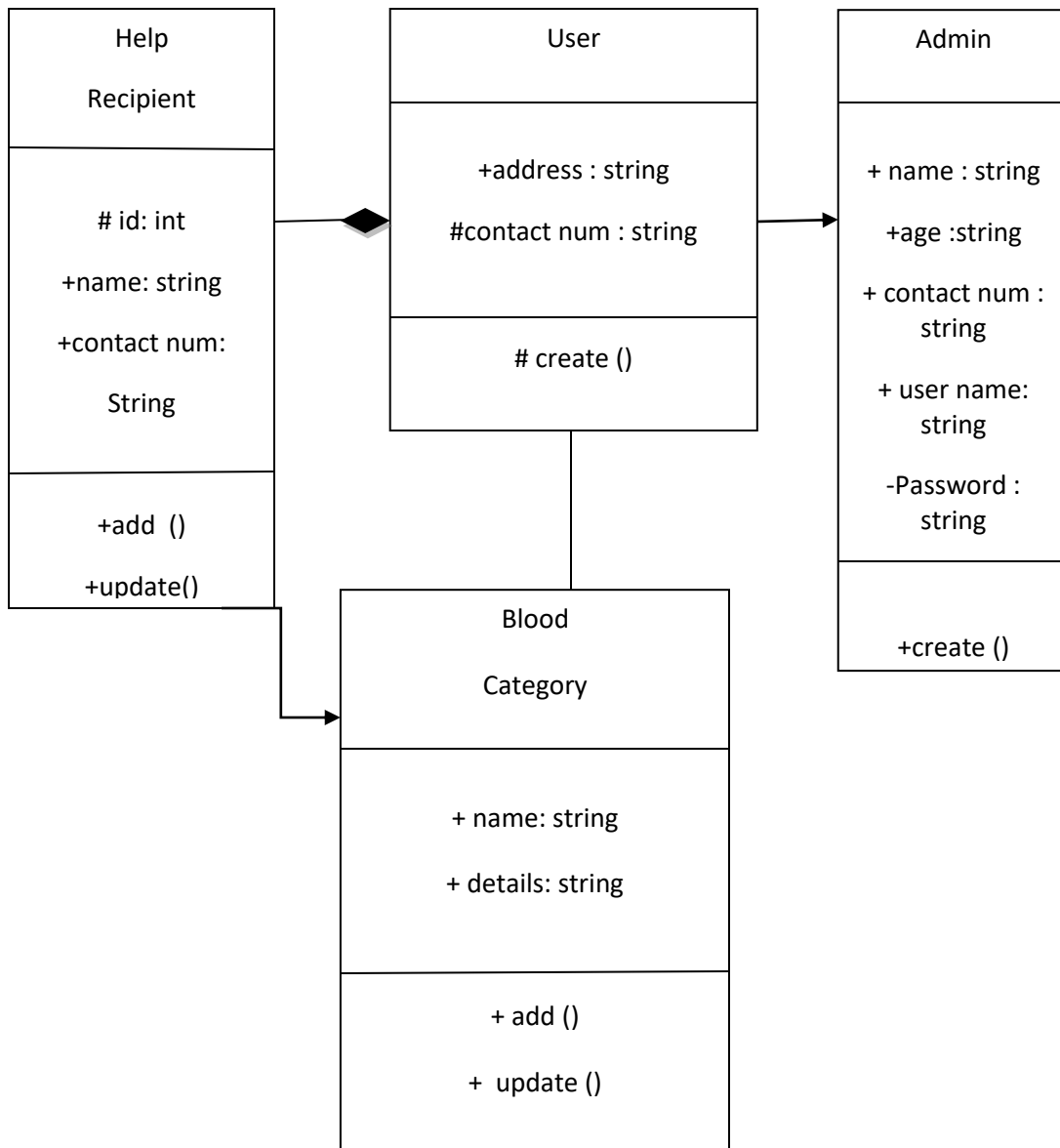


Figure 3.4 Class Diagram

## CHAPTER 4

### Design Specification

#### 4.1 Front-end Design

Front end design can be very important for every internet software or software. Due to the fact that front-end design is the world that interacts with customers. We are going to create an internet utility. So a front end design for a good person carrier can be essential for utility.

Below is some front-end design of our web page.

##### 4.1.1 Home Page

- Show index of selected pages to users.
- Users can view all details of the web page.
- Users can also see the navigation bar of the web page.
- Users will also find out a Register button and a Login button on the navigation bar.

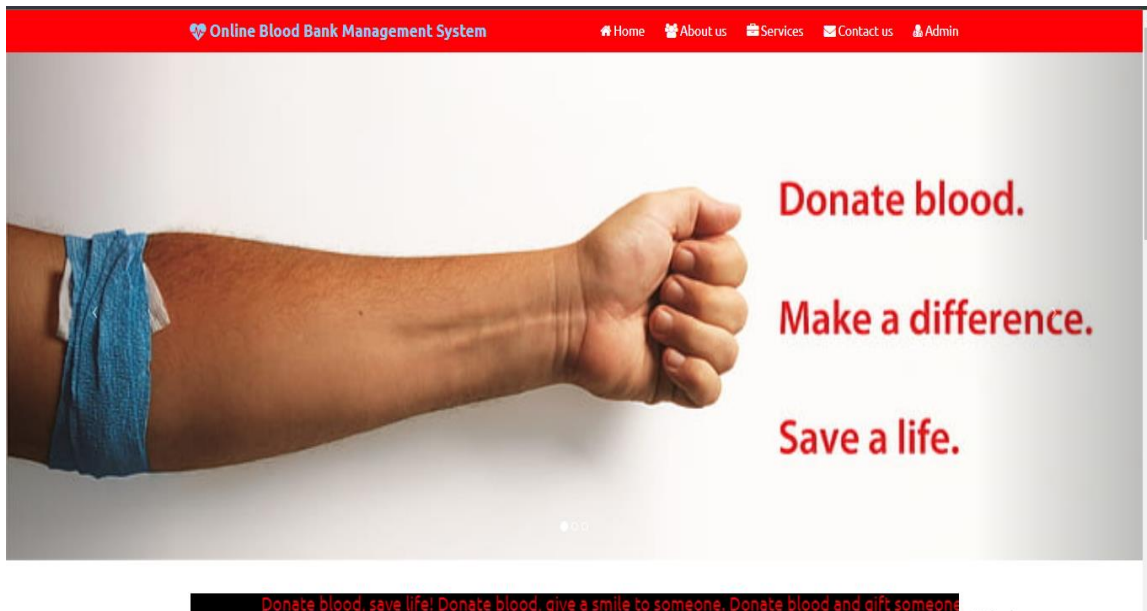


Figure 4.1: Online Blood Bank Management System Home Page

### 4.1.2 Registration

First a donor should give his name, then his father's name, his gender, his date of birth, his blood group, his body weight, his A valid email id, country he is in, state he is in, city he They are coming, they are in the area, permanent address. If a donor wants to donate his blood then he must maintain these formalities. If one does not fulfill the given percentage of the options given here then he will not be able to donate blood. If someone gives wrong information here he will be stopped from donating blood.

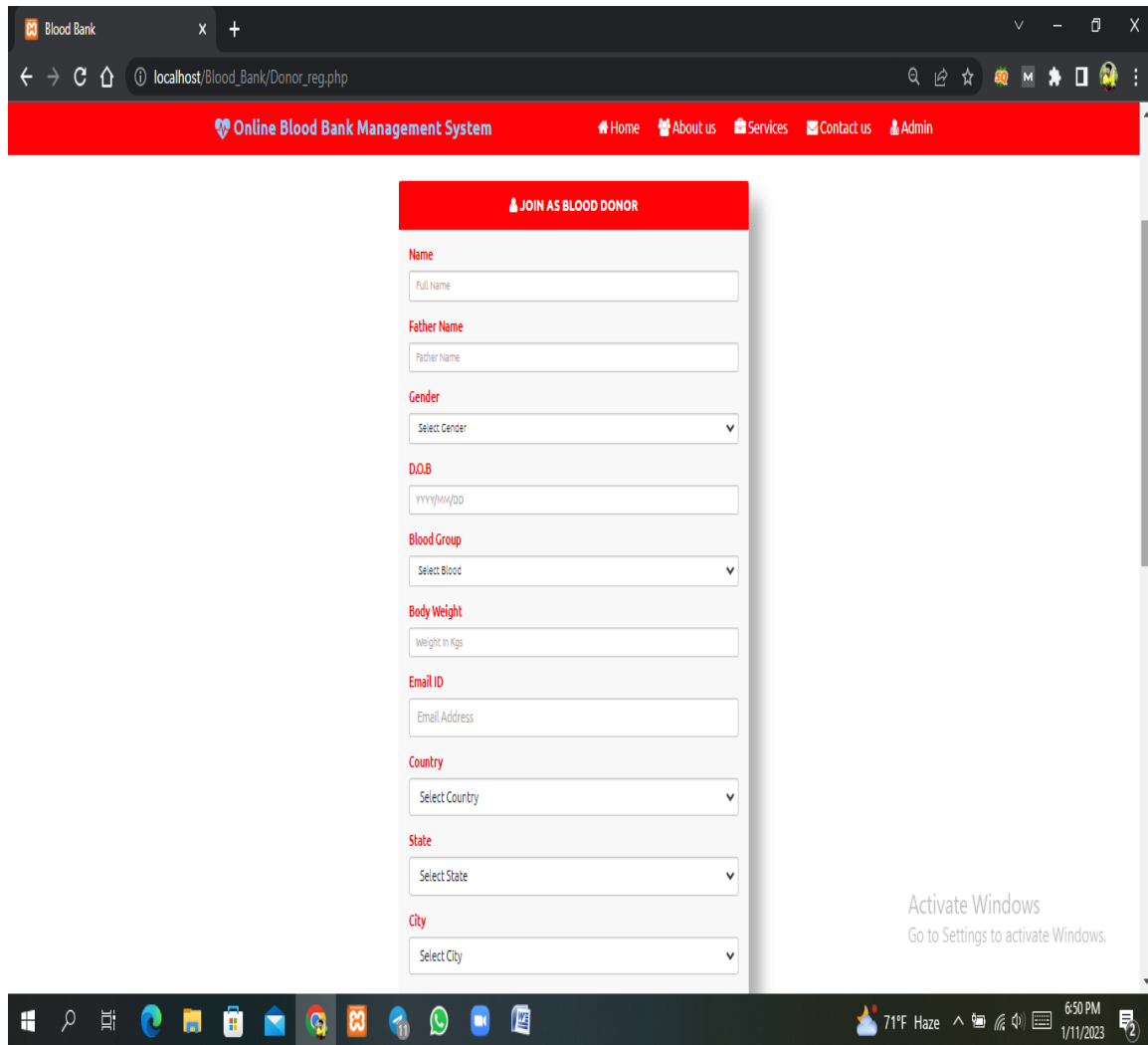


Figure 4.2: Online Blood Bank Management System Registration Page

### 4.1.3 Update profile

- A registered user must provide a valid email account.
- A valid address of the registered user must be provided.
- Registered user must provide date of birth.
- Registered users are required to provide blood group.
- Gender of registered users must be provided.

### 4.1.4 Need Blood To Save Life

If blood is needed for a patient, then the name of the disease should be mentioned, his gender should be mentioned, which group of blood should be mentioned, how many bags of blood should be mentioned, the name and address of the hospital should be mentioned, the name of the doctor should be mentioned. It should be done, when it will be required, email ID should be mentioned, two mobile numbers should be mentioned which will be open all the time, why blood is needed, one photo of the patient should be uploaded.

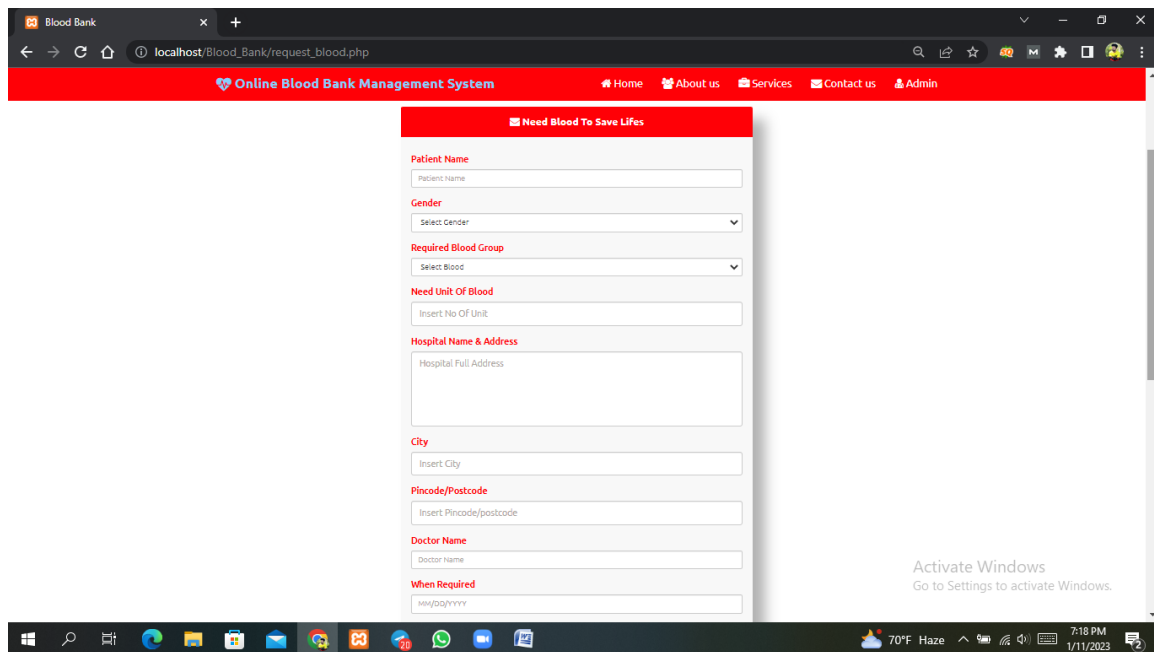


Figure 4.3: Online Blood Bank Management System Registration Page

### 4.1.5 Search Donor Availability

If a person who needs blood wants to search whether there is a blood donor available without registration, he can get the blood he needs, then he can come to this page and search. Then he can directly contact the donor without registration.

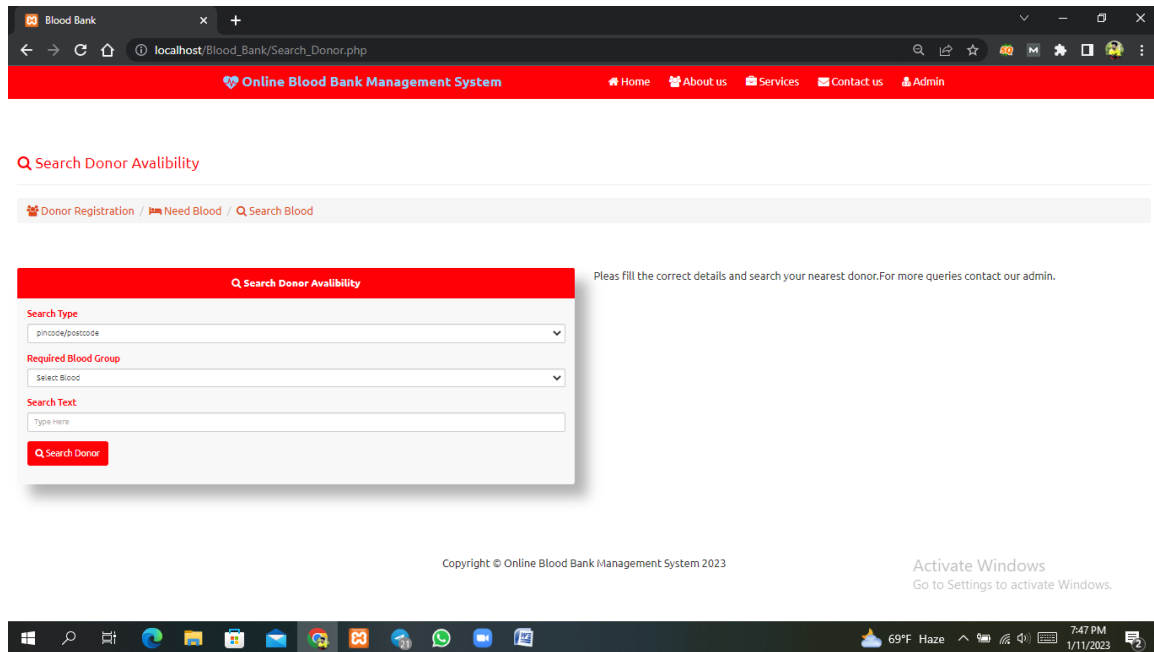


Figure 4.4: Search Donor Availability Page

You need to search to peer if there's a donor to be had label, you've got to mention the pin code or publish code, you have to mention the name of the blood group of the blood organization, then you need to search.

### 4.1.6 Login

In case of admin login, first the admin has to go to the web page of the online blood bank management system. There is a field called Admin. Go there and give admin username. Then enter the password. Make sure that the username and password are 100% correct.

- Needed valid user name.
- 100% true password is required.

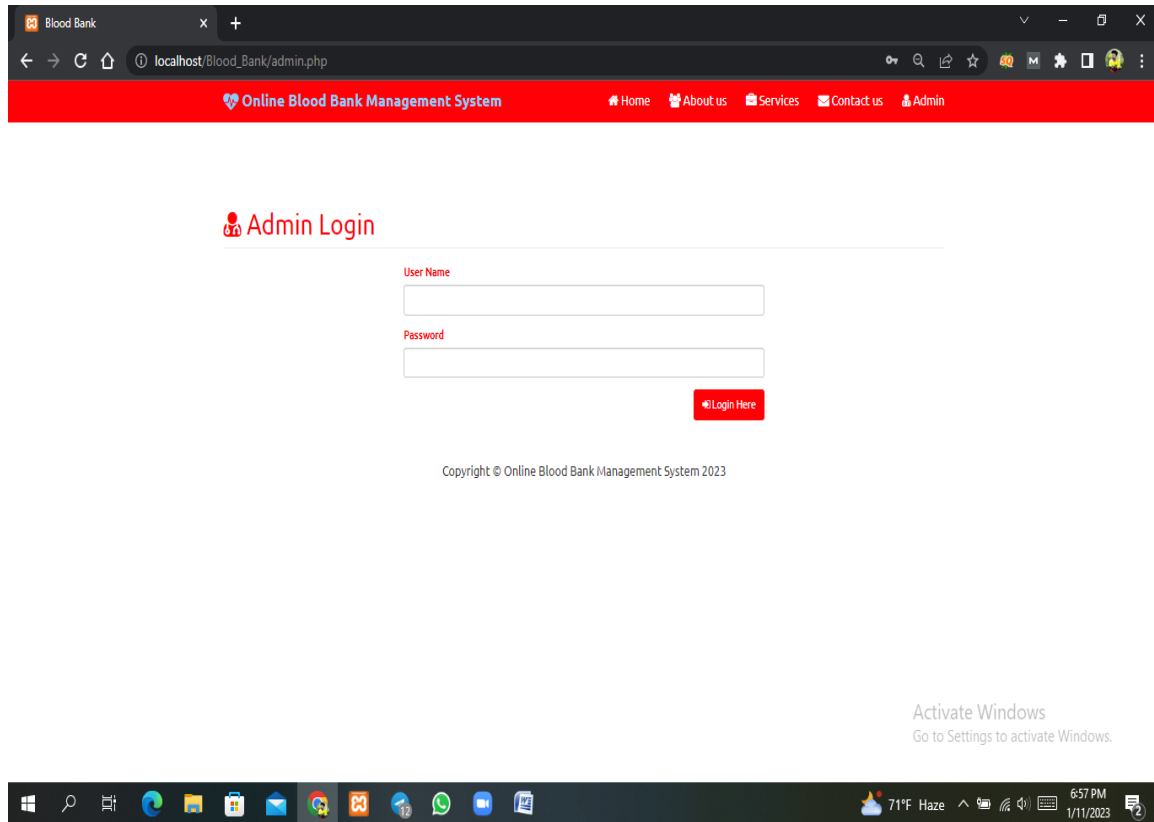


Figure 4.5: Admin login Page

#### 4.1.7 Request message

There are times when emergency blood is needed at critical times. Then the user has no time to register. Due to which many times he does not get his desired blood. Apart from this, if someone needs emergency blood at the time of need, he can directly message the admin. Admin can take necessary action after seeing that.

- Mention full name.
- Mention contact number.
- Mention email address.
- Type message.
- Sent message.



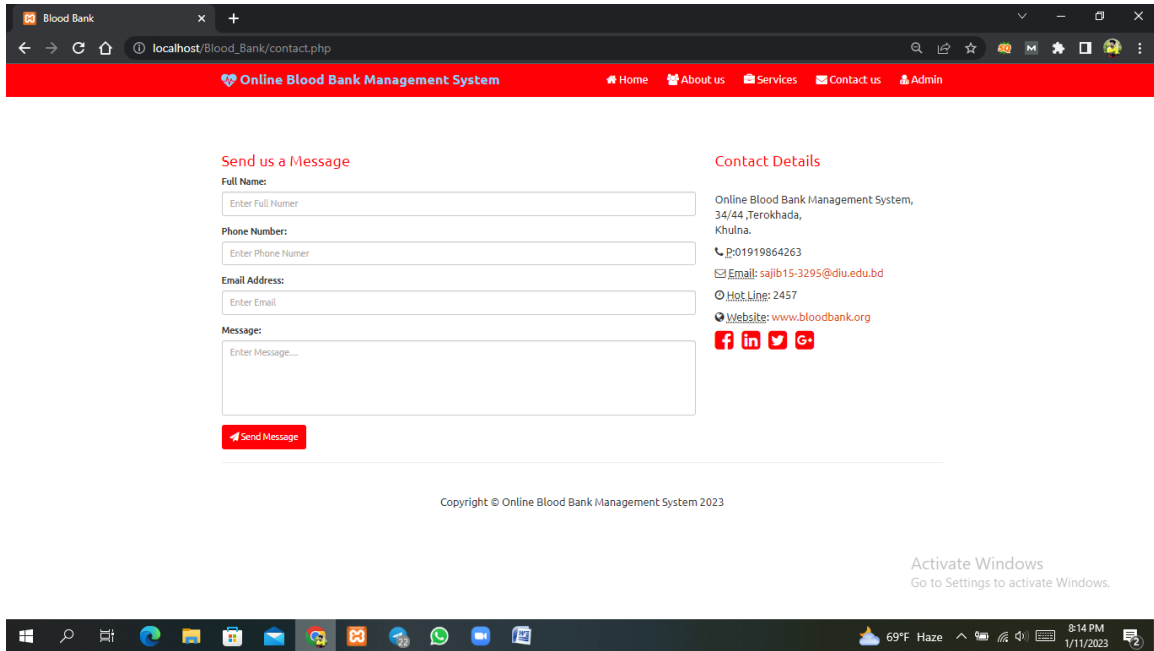


Figure 4.6: Message Request Page

#### 4.1.8 Show Request message

After sending a message asking for blood in an emergency situation, the message will be displayed to the admin like this-

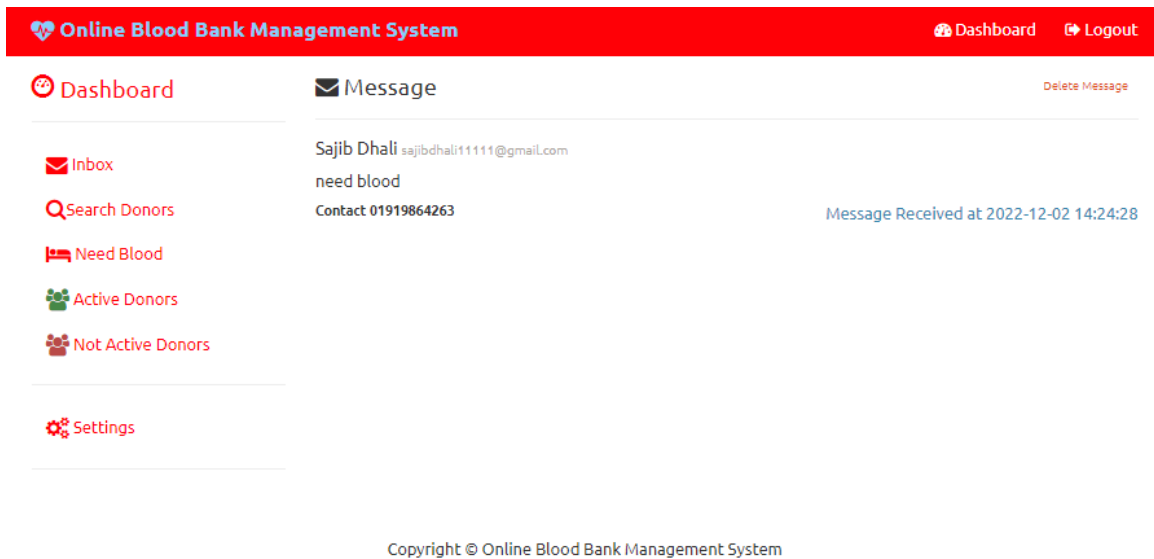


Figure 4.7: Show Request Message Page

## 4.2 Back-end Design

Each set has a stitch design on the lower back for storing figures or facts. We also used backstop design in our app. We create a database map for our application and show it below:

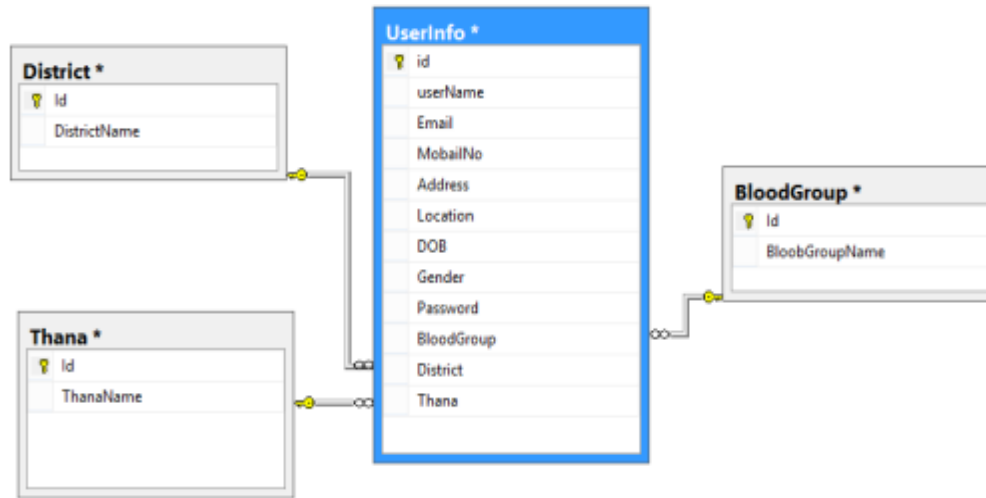


Figure 4.8: Online Blood Bank Management System Database Diagram

In this diagram we join all our database tables and select the first number and foreign key. We also use some programming language to select the counterparty's shop price.

## 4.3 Implementation Requirements

Here are some of the apps we have taken the help and support of to display our web page

- XAMPP v3.3.0
- NetBeans IDE 8.0.2

All the processes that the admin has to go through to display the web page are:

- At first need to install XAMPP/NetBeans IDE in his/laptop or computer.
- Open XAMPP
- Press 'Start' button of Apache and MySQL
- Now go to any browser or laptop/computer and open the link of the web page.



Figure 4.9: Xampp control pannel

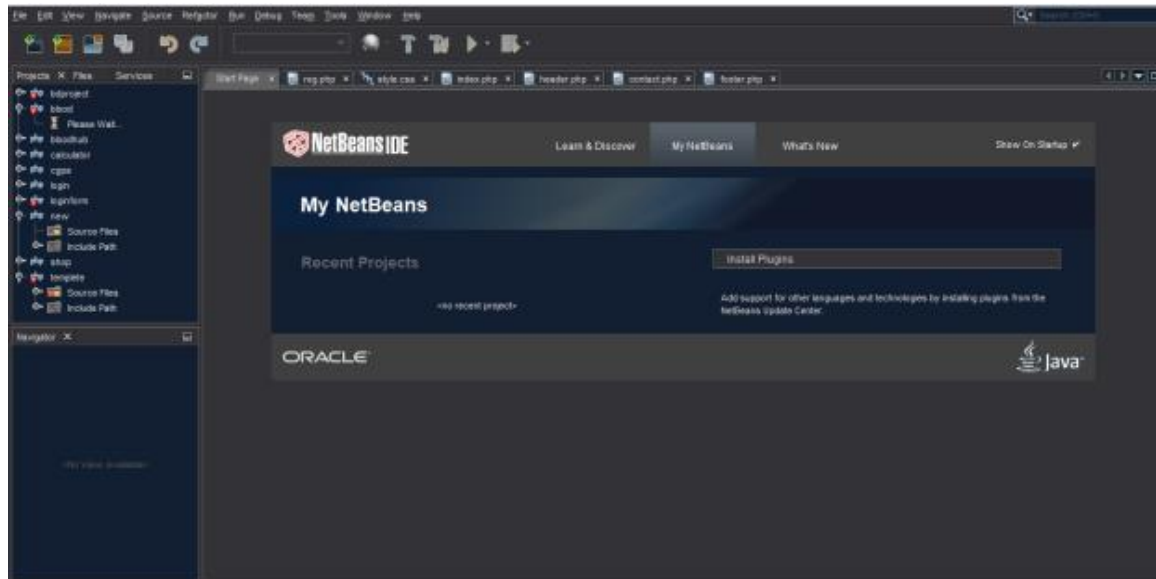


Figure 4.10: NetBeans IDE 8.0.2

# CHAPTER 5

## Implementation And Testing

### 5.1: Implementation of database

A database implementation is a user information storage system. Database implementation is the process of installing a database application. It is a design and identity requirement of the database.

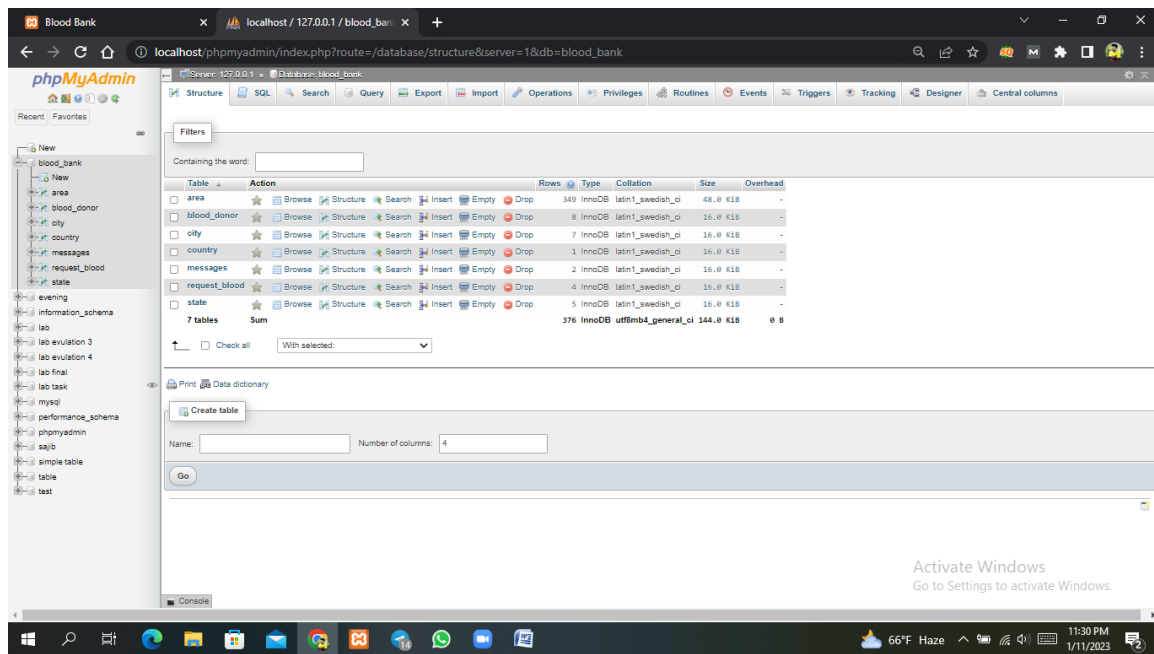


Figure 5.1: Database design

#### 5.1.1 Blood Group

The blood bank database saved the blood statistics of all users. When a user searches for blood, the blood system's database table understands all the information about the user's blood.

#### 5.1.2: User Information

When a user uses our system he must provide all his information which is stored in our database. Therefore, when a user searches for a provider, the user can retrieve information about the user database table.

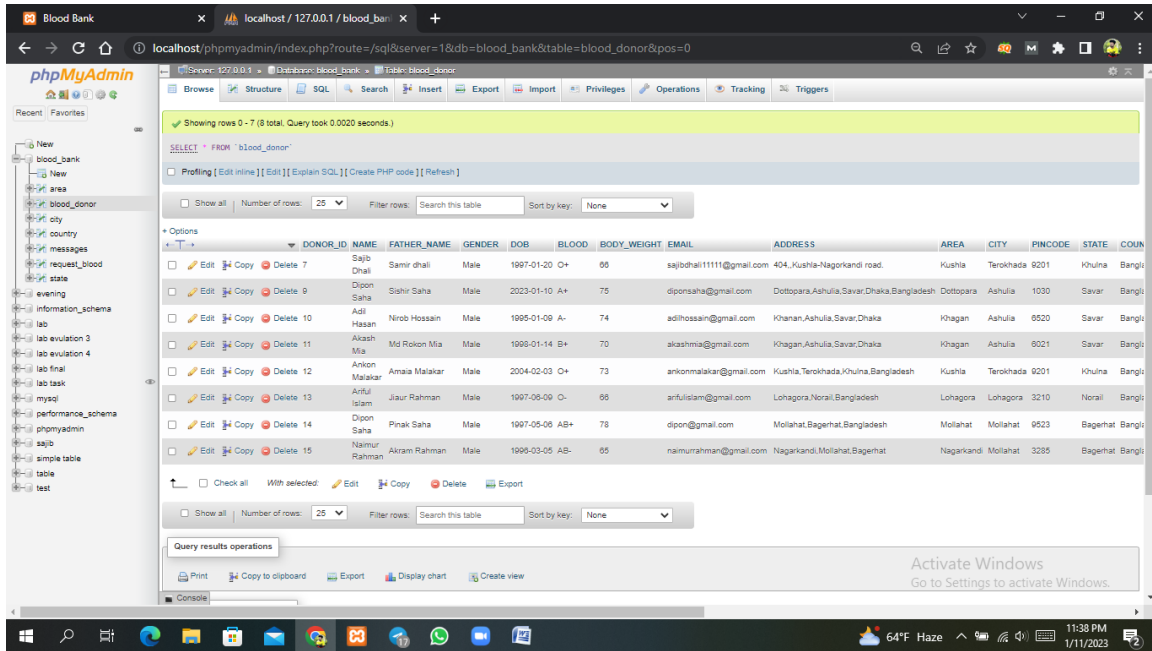


Figure 5.2: Database design of users

### 5.1.3: City and State

When a person uses our system he needs to provide the city and state address. Due to which it is saved in the database. When a person searches for a donor this helps him find the data he has and gives a detailed idea about him.

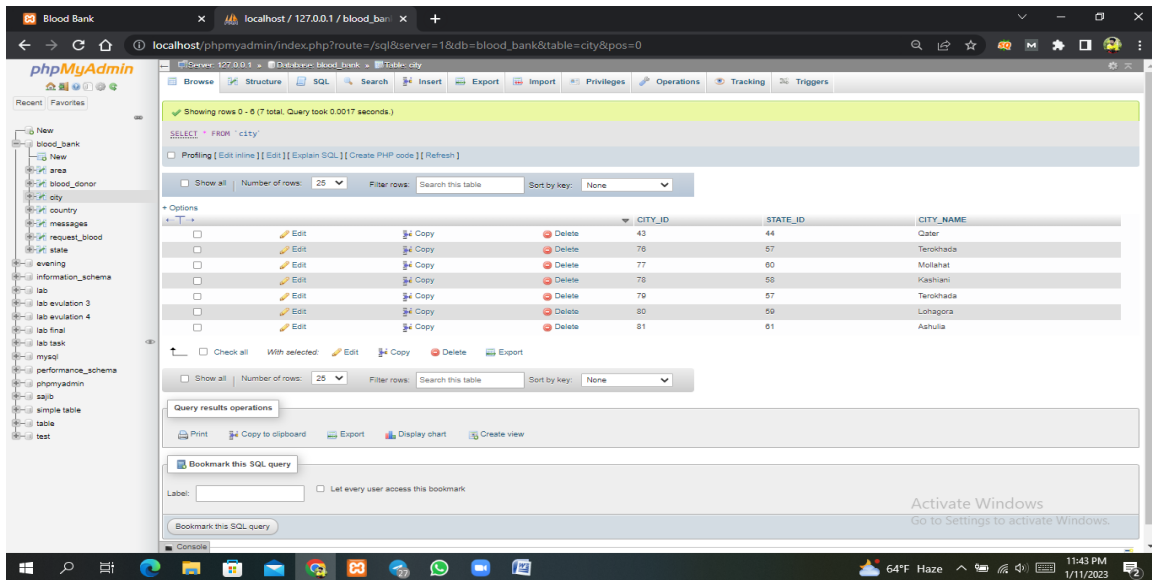


Figure 5.3: Database design of City

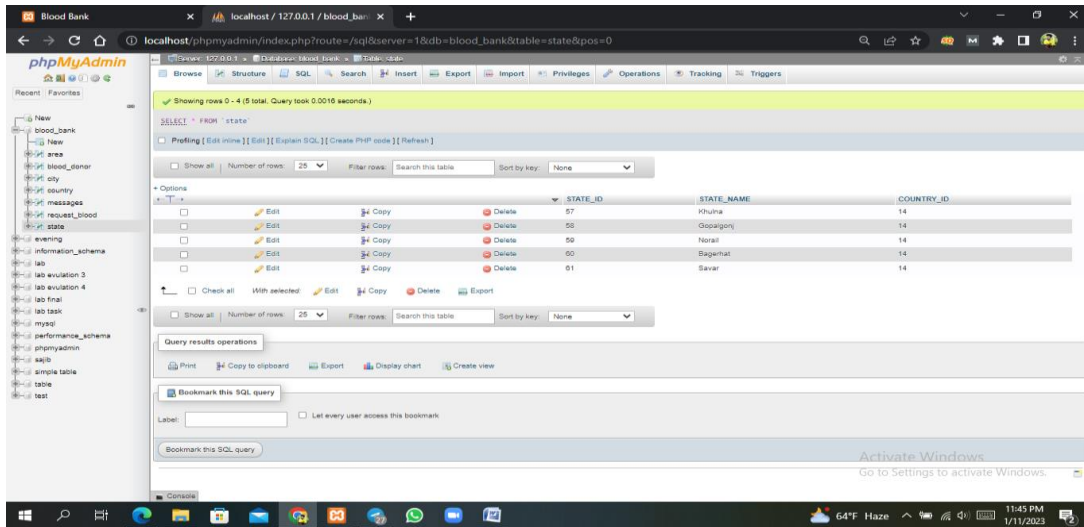


Figure 5.4: Database design of State

## 5.2 Implementation of Front-end Design

We have tried to improve on this challenge and implementation of front-seas design. We have used it html, css3 and java script which make better person interface. We want to create a user-pleasing layout in our project. So that every customer can use it without any problem.

### 5.2.1: Overview of pages and Description

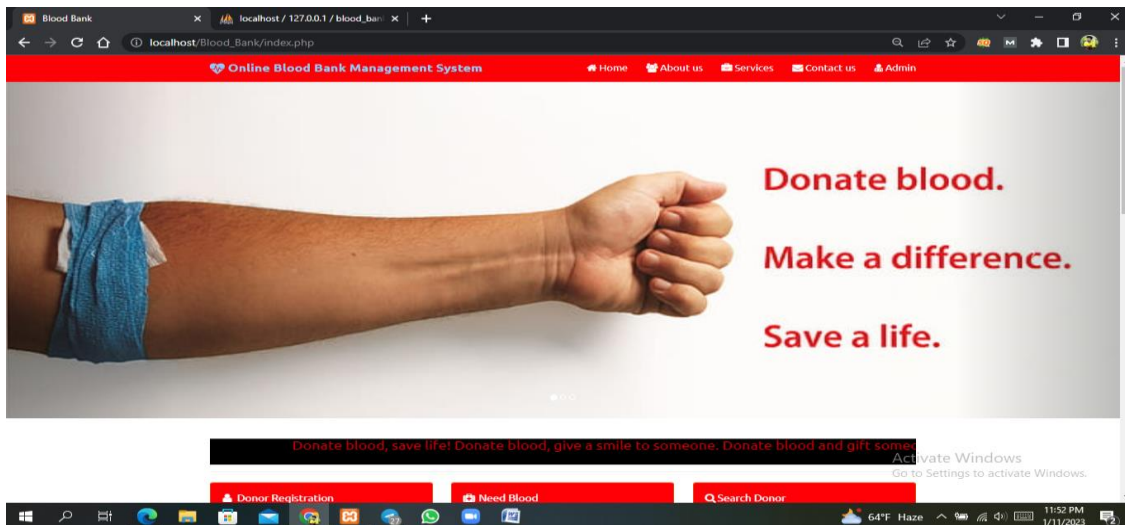


Figure 5.5: OBBMS Home Page

This figure is Online Blood Bank Management System web page main home page. It has a row bar there exist home, about, services, contact us and admin. If any user click services key then open registration form. If determination is complete then user can able to know that his information is gather into database.

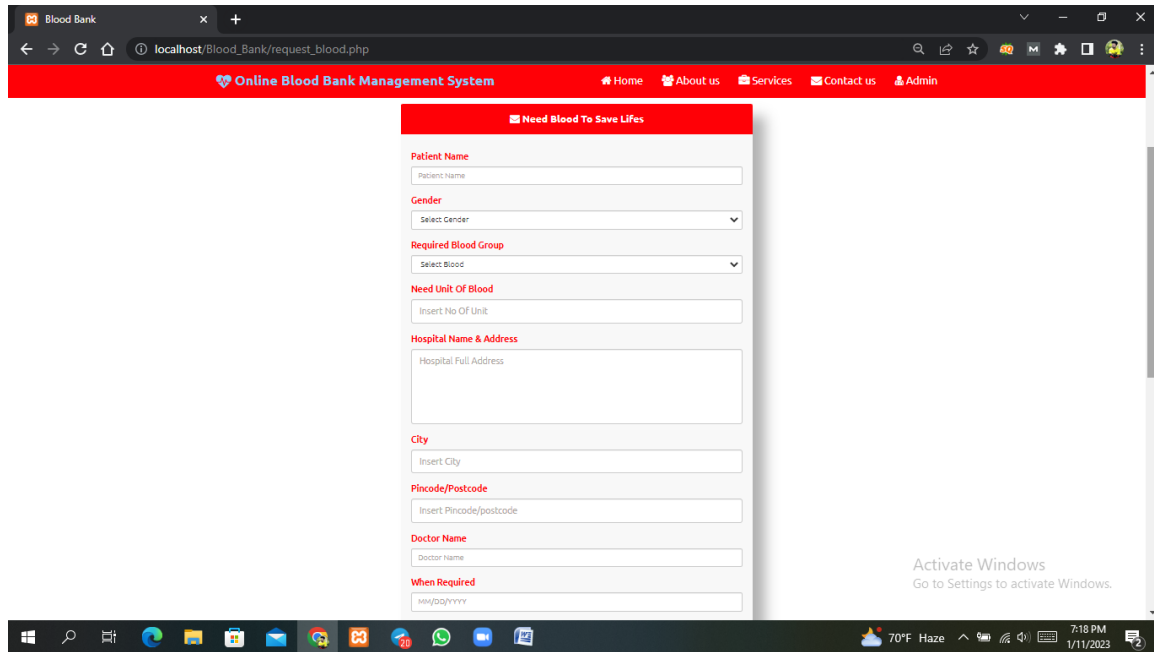


Figure 5.6: OBBMS Registration Page

This picture is Online Blood Bank Management System user registration page. All categories of people can register themselves on our web page. All information must be provided for registration. If a person fails to provide his/her correct information then he/she will be disqualified from successful registration..

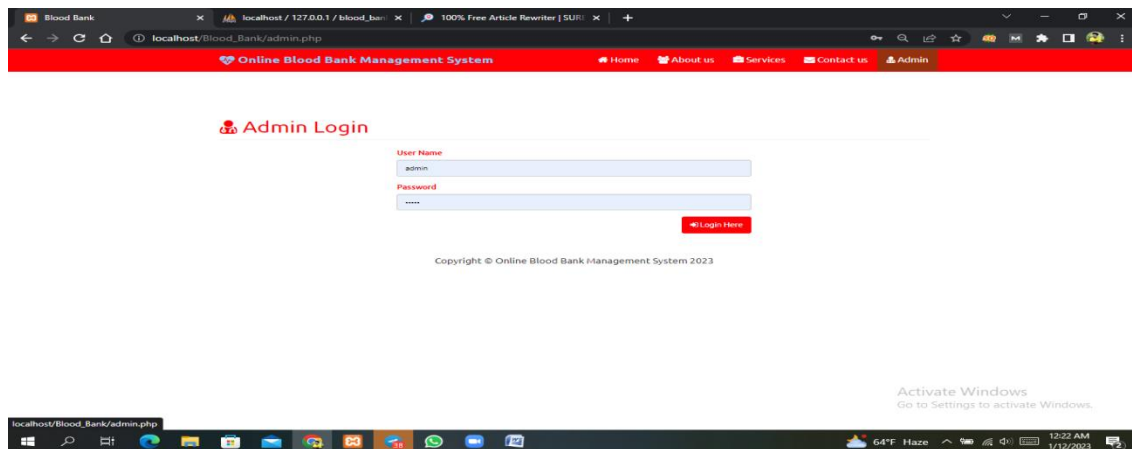


Figure 5.7: OBBMS Admin Login Page

This picture is Online Blood Bank Management System Login panel. This web page can be accessed by those who have registered .Without registration no person can enter into the page. So we can say that, authentic information must need for login into the page.

### 5.3 Testing Implementation

Attempting to execute is a system of motion for a formulated plan. We are trying out some of the components of this device. It requires the necessary set up, configuration, customization, walk through and training the person.

This page is electronic mail verification Donate blood and collect lifestyle packages. Show that email verification failed when the user returns an incorrect code.

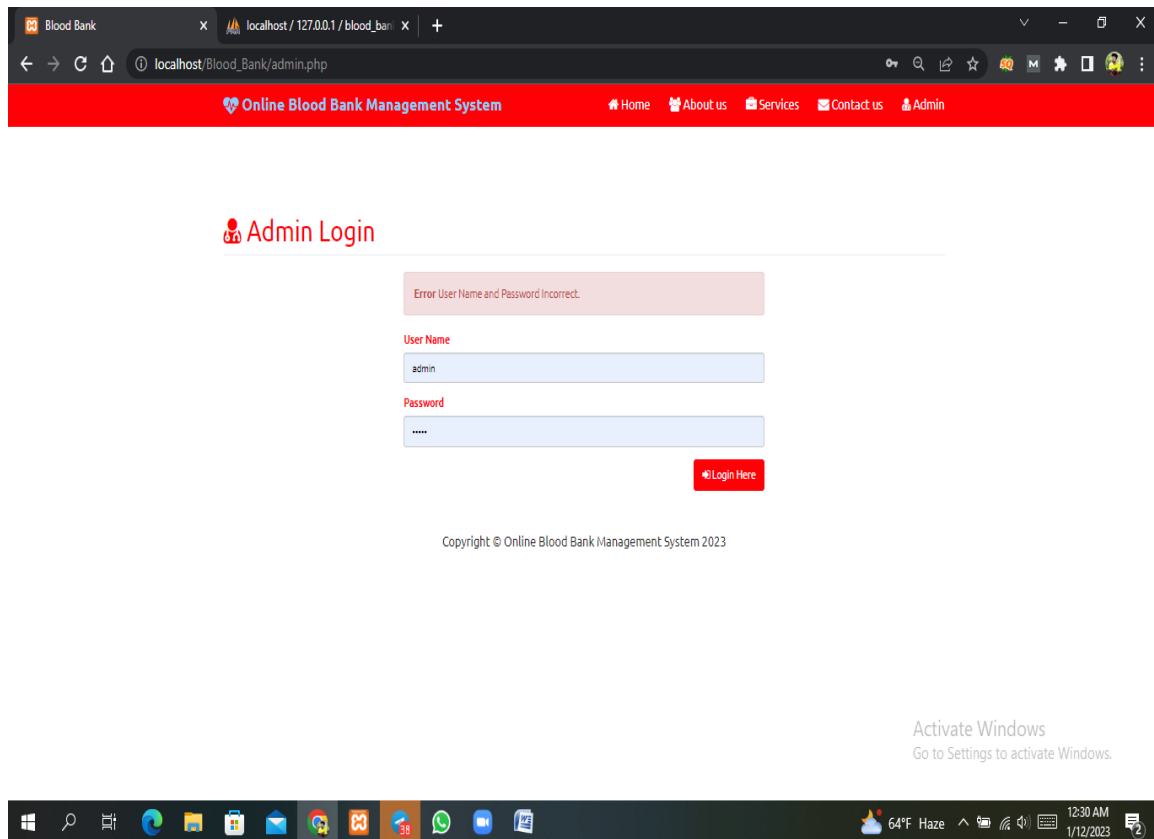


Figure 5.8: Invalid Login Form



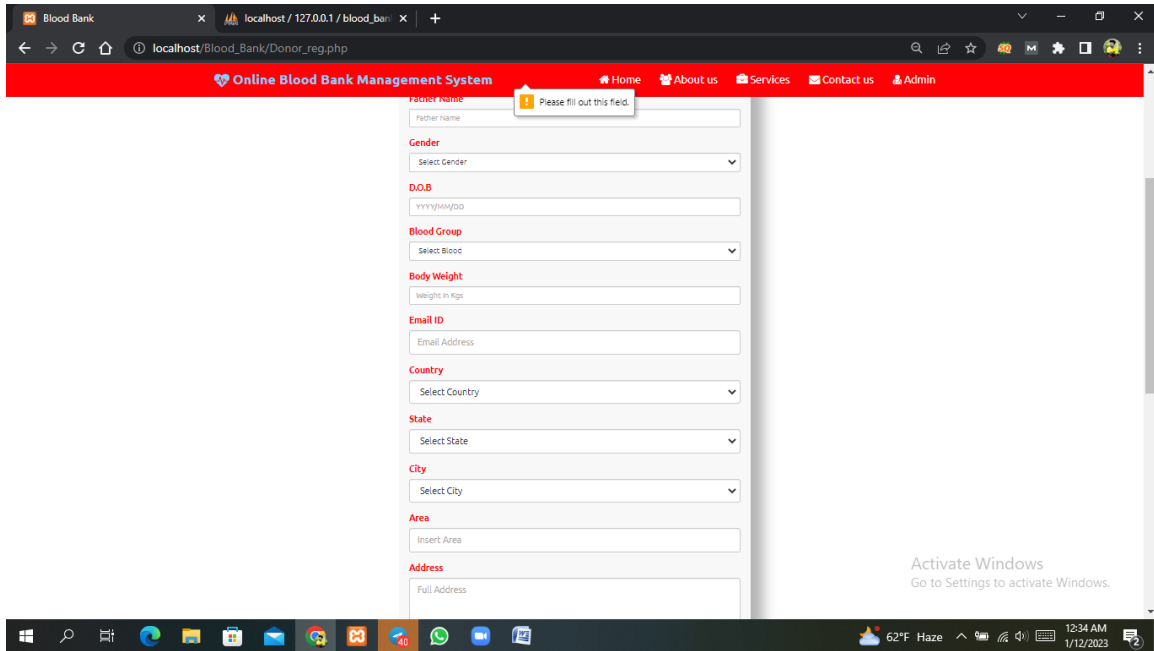


Figure 5.9: Invalid Registration Form

This page is an invalid registration form. No one can register without correct or honest information. If anyone want to registration must correct information are required. Without this no one can't registration successfully. Then this message will show.

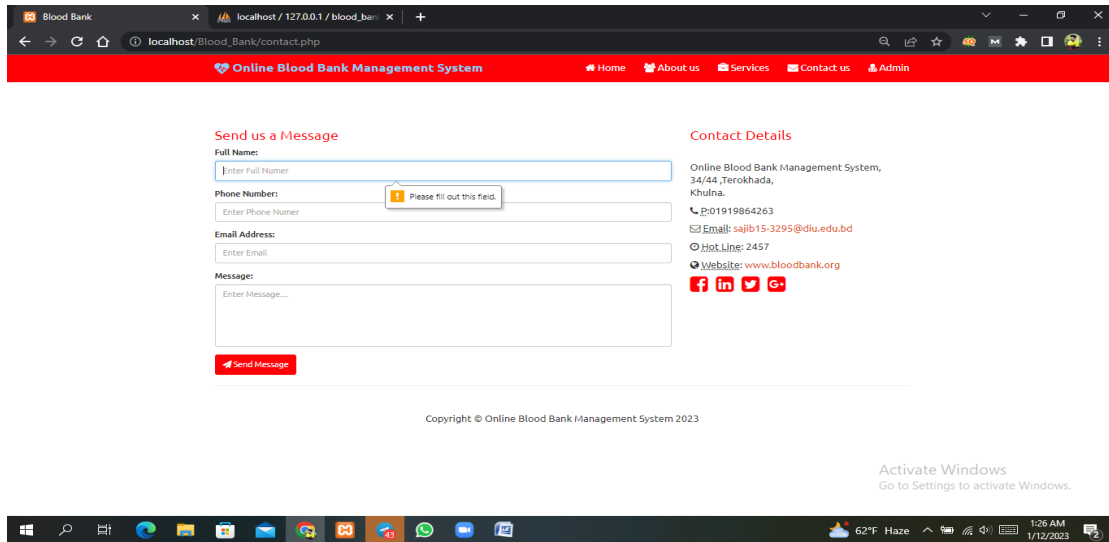


Figure 5.10 Invalid Sent Message Form

This page is invalid Sent Message form. No one can sent any message without correct or authentic information.

## 5.4 Test Results and Reports

Table 5.1: Test Case Table for Registration..

Test Case	Test Input	Expected Output	Actual Output	Result	Tested On
1.Show The application pages	Tested browsers- <ul style="list-style-type: none"> <li>• Firefox</li> <li>• Google</li> <li>• Chrome</li> <li>• Opera</li> </ul>	To display the Pages successfully	Displayed the pages successfully	Passed	11-01-2023
2.Username	Blank or Incorrect Username	Username or correct username must entered	Showed the Warning	Passed	11-01-2023
3.Password	Blank or Incorrect Password	Password or correct password must entered	Showed the Warning	Passed	11-01-2023
4.Registration	Without Registration	To restrict to access the Donate Blood and Save Life	Imposed the restriction	Passed	11-01-2023

Table 5.2: Test Case Table for Blood Hub

<b>Test Case</b>	<b>Test Input</b>	<b>Expected Output</b>	<b>Actual Output</b>	<b>Result</b>	<b>Tested On</b>
1.Create profile for users	Input blood group, date of birth and address	Add users blood group, dob and address	Updated user profile and details	Passed	12-01-2023
2.Search donor information	Add blood type and location	Show the matching donor list	Showed the donor list	Passed	12-01-2023
3.User request for blood	Input blood group and location	Send request all donor	Delivered to all request	Passed	12-01-2023

## **CHAPTER 6**

### **Conclusion And Future Scope**

#### **6.1 Discussion and Conclusion**

Our main aim was to work with this system so that people don't have difficulty in getting blood. We often see how a patient is dying due to lack of blood. And the main reason for not getting the blood is the lack of communication. Many people do not understand through whom or where to go to get blood easily. So it can be said that if anyone has an idea about our system then surely if he fills the formalities here on time then he will not lack of blood. We have created this website for the complete welfare of the people. Our main aim is that one person should not die due to lack of blood. And for that purpose we are trying hard and we are doing our best.

#### **6.2 Scope for Further Developments**

- Make IOS and Android version is my main goal.
- We will introduce options for donation of other vital organs including plasma donation, kidney donation.
- In the future our systems will need a lot more storage. Now the database we are using is not that big, we will need a much bigger database in Infuser. We are working to solve this problem.
- We will make more advanced features in the future.

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