B.Sc. Engg. Project

A Project on **Blood Donation Management System**

by

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Submitted to

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Acknowledgment

We would like to pay our gratitude to the Almighty Allah who created us with all the abilities to understand analysis and develop the process with patience. We are thankful to our project supervisor Sweety Lima, Lecturer, Computer Science and Engineering Department, Bangladesh University of Business and Technology for her professional guidance and motivation during the work of this project which is a major part of it. Without her valuable support and guidance, this project could not reach this level of development from our point of view.

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Abstract

Working with blood donation on a online platform faces different issues and the most important issues are the security of the data and the processing time or power. We have tried to develop a website to put together the donor and the receiver with the MySQL and PHP and solve security issues regarding that. We have a database and made different tables and used the store data and connect them through keys. The important data is kept as encrypted on the shared table. We have used different types of keys for accessing the data. The PHP code will encrypt the password while storing on shared storage and when it'll need to be used, it decrypt itself. As the data will be encrypted, there's no way to read the main data or break the security of the system. We have used bcrypt password-hashing function to encrypt the data that makes it more secure. The most unique part of our work is, no user can be registered unless he verify himself with the OTP code send on his email. It ensures that all the users have registered with their valid email address. The visitor can request for specific data on the website and the data will be pulled from different tables based on their request. The admin controls the whole system as always. We have made a simple website to serve the people in need of blood. We have been successful to pass the input data and get it as output data through our system. No unnecessary data were pulled and the data selection were held on the storage memory. The final result from the website were also passed as encrypted through the system. As we have used the database, the processing power for the data selection and the data passing has improved and made the data passing time and data processing capacity handy. So we can say, we made a simple website using quite effectively.

Declaration

We hereby declare that the Project on **Blood Donation Management System** studies on Software Engineering Lab submitted in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering of Bangladesh University of Business and Technology (BUBT) is our own work and that it contains no material which has been accepted for the award to the candidate(s) of any other degree or diploma, except where due reference is made in the text of the project. To the best of our knowledge, it contains no materials previously published or written by any other person except where due reference is made in the project.

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Copyright

Dedication

Dedicated to our parents, teachers, friends and who loved us for all their love and inspiration.

Certificate

This is to certify that Copyright by Tunazzinur Rahman Kabbo (ID: 19202103268), Md. Hasan Nayem (ID: 19202103274), Afrina Akter Mim (ID: 19202103310) and Sagor Kumar Saha (ID: 19202103423) were belong to the department of Computer Science and Engineering, have completed their Project on Blood Donation Management System satisfactorily in partial fulfillment for the requirement of Bachelor of Science in Computer Science and Engineering of Bangladesh University of Business and Technology in the year 2022.

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Approval

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Chapter 1

Introduction

1.1 Introduction

. In short we can say that **Blood Donation Management System** is an web application which helps its users to look for the blood donor information and to provide direct link between the donor and recipient. This system helps Administrator to check the database and make changes.

1.2 Motivation and Objectives

Safe blood and blood products and their transfusion are a critical aspect of care and public health. They save millions of lives and improve the health and quality of life of many patients every day. The need for blood is universal, but access to blood for all those who need it is not. So our project is to connect blood donor to those who are in need of blood and share kindness.

1.2.1 Project Description

This project will cover three categories of users where the Admin have access all over the database and the Registered Users and the Guest can access specific data from the database.

1. Registered Users (Donors and Recipient)
    - Login and Registration

- E-mail Notification on Blood Request
- Abstain for 3 Months after Donating Blood Once
- Look for Blood Donor on the Basis of Blood Group and District

2. Admin

- Login
- Inactive Users Deletion on Their Request
- Make Announcement on Campaign
- Blood Bank Information Management

3. Guest

- Contact to Donor for Blood Request
- Leave Any Message to the Admin

Chapter 2

Methodology

2.1 Agile Development

Agile methodology is a method of project management that divides a project into phases. It is an iterative, time-boxed, people-oriented, and result-focused method to software delivery in which software is built sequentially from the beginning of the project rather than together at once near the end. Agile methodology is in accordance with the Agile Manifesto on Software Development's values and principles. The requirements, plans, and results are all examined on a regular basis, and teams are encouraged to make rapid changes based on this approach. Many new agile frameworks have emerged such as Scrum, Kanban, Lean, and Extreme Programming (XP) that combine practices from different frameworks followed by its uniqueness to the team.

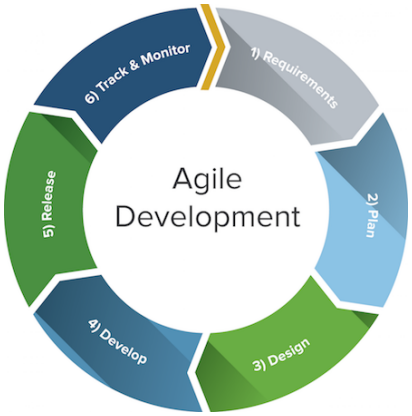

Figure 2.1: Agile Development Methodology

The Extreme Programming is commonly used agile process model. This project is developed using this model.

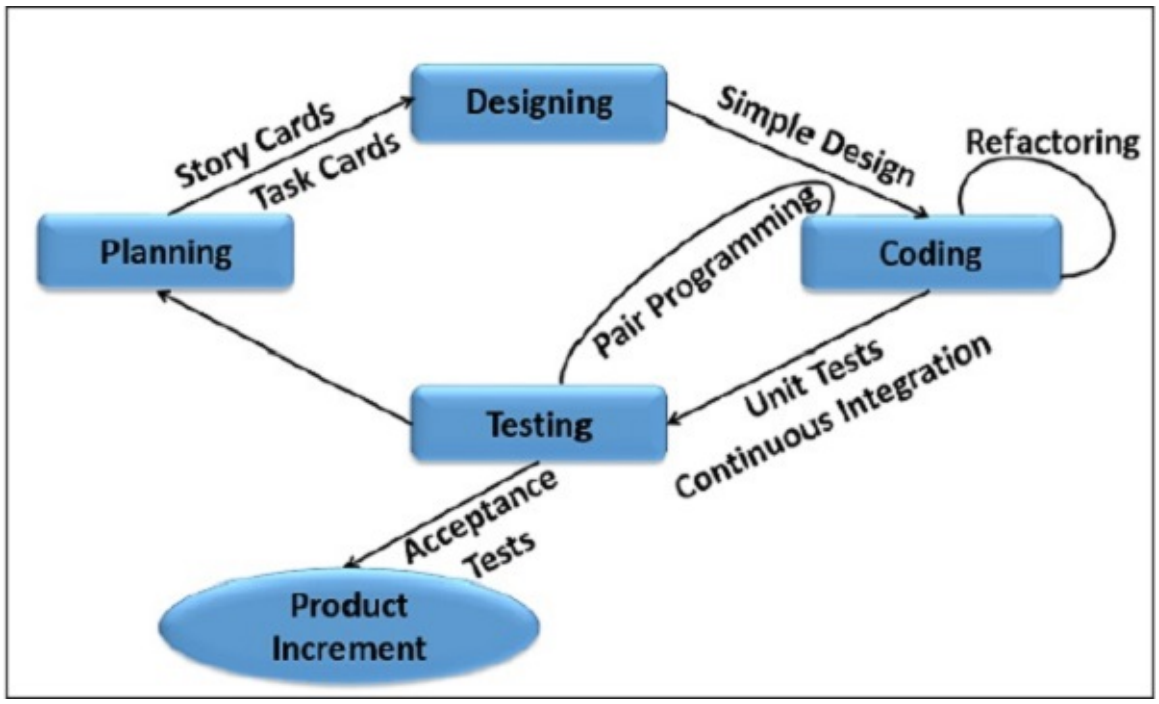

Figure 2.2: Extreme Programming Model

The XP process comprises four framework activities:

1. Planning
    - Planning starts with the requirements gathering which enables XP team to understand the rules for the software.
    - The customer and developer work together for the final requirements.
2. Design
    - The XP design follows the 'keep it simple' principle.
    - A simple design always prefers the more difficult representation.
3. Coding

- The coding is started after the initial design work is over.
- After the initial design work is done, the team creates a set of unit tests which can test each situation that should be a part of the release. Refactoring is the technique of improving code without changing functionality
- Two people are assigned to create the code which is called pair programming. It is an important concept in coding activity.

4. Testing

- Validation testing of the system occurs on a daily basis. It gives the XP team a regular indication of the progress.
- 'XP acceptance tests' are known as the customer test.

2.2 UML Diagrams

2.2.1 ER Diagram

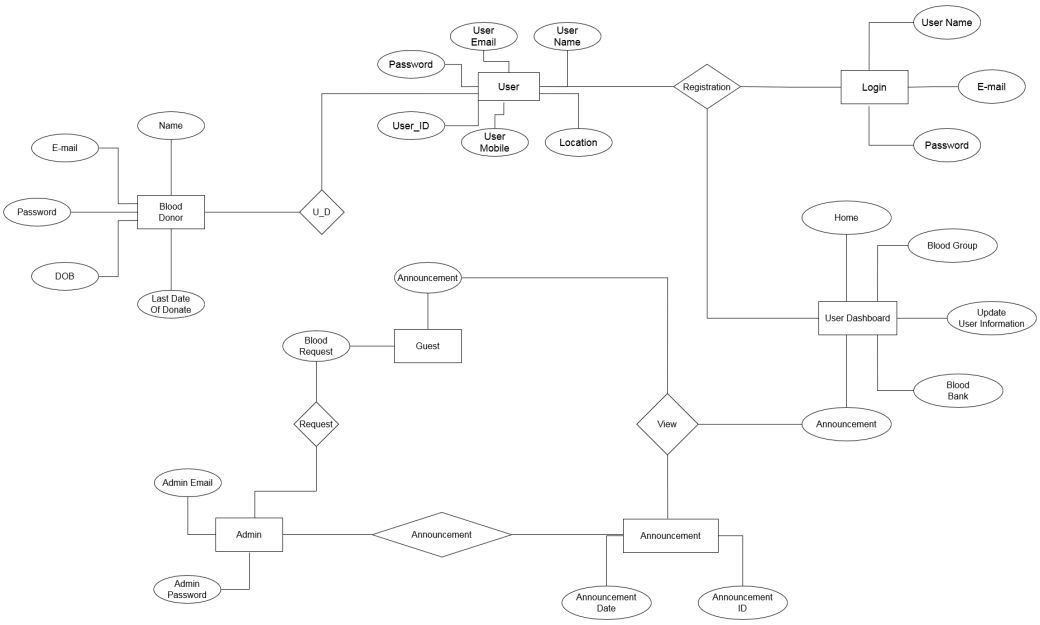

Figure 2.3: ER Diagram

2.2.2 Class Diagram

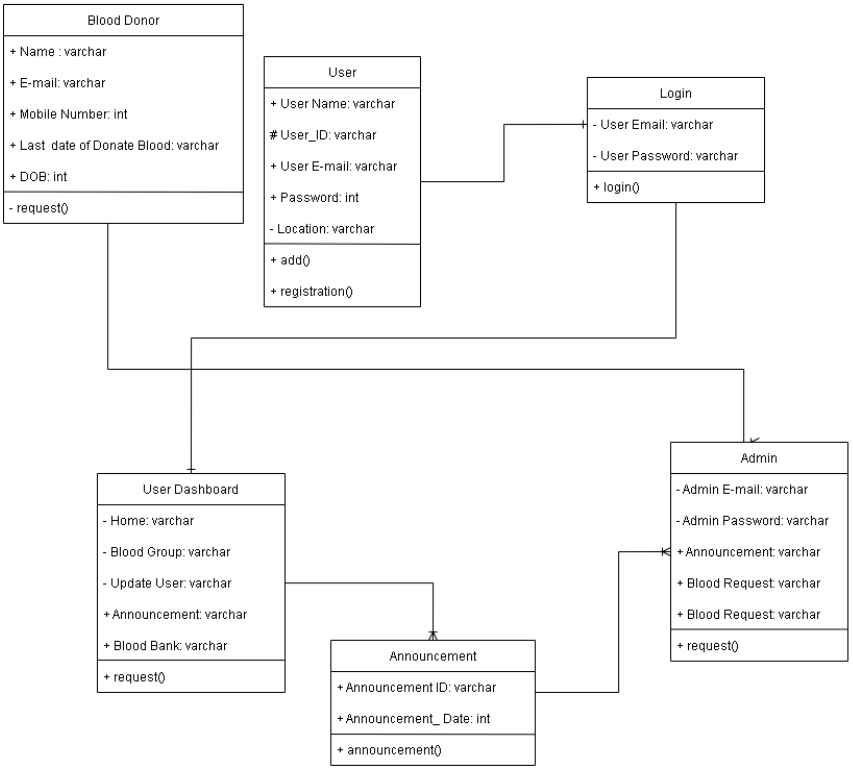

Figure 2.4: Class Diagram

2.2.3 Use Case Diagram

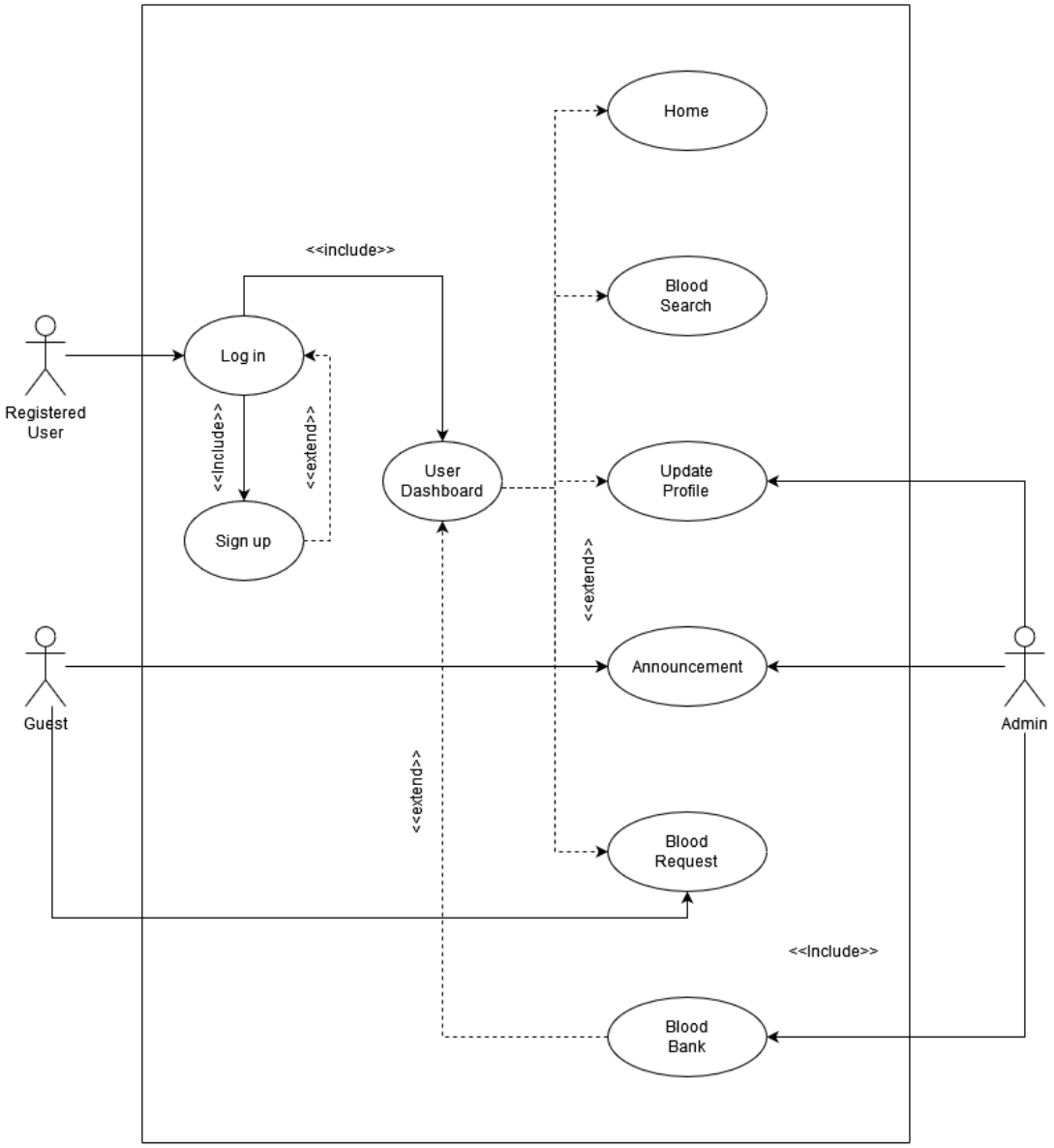

Figure 2.5: Use Case Diagram

2.2.4 Activity Diagram

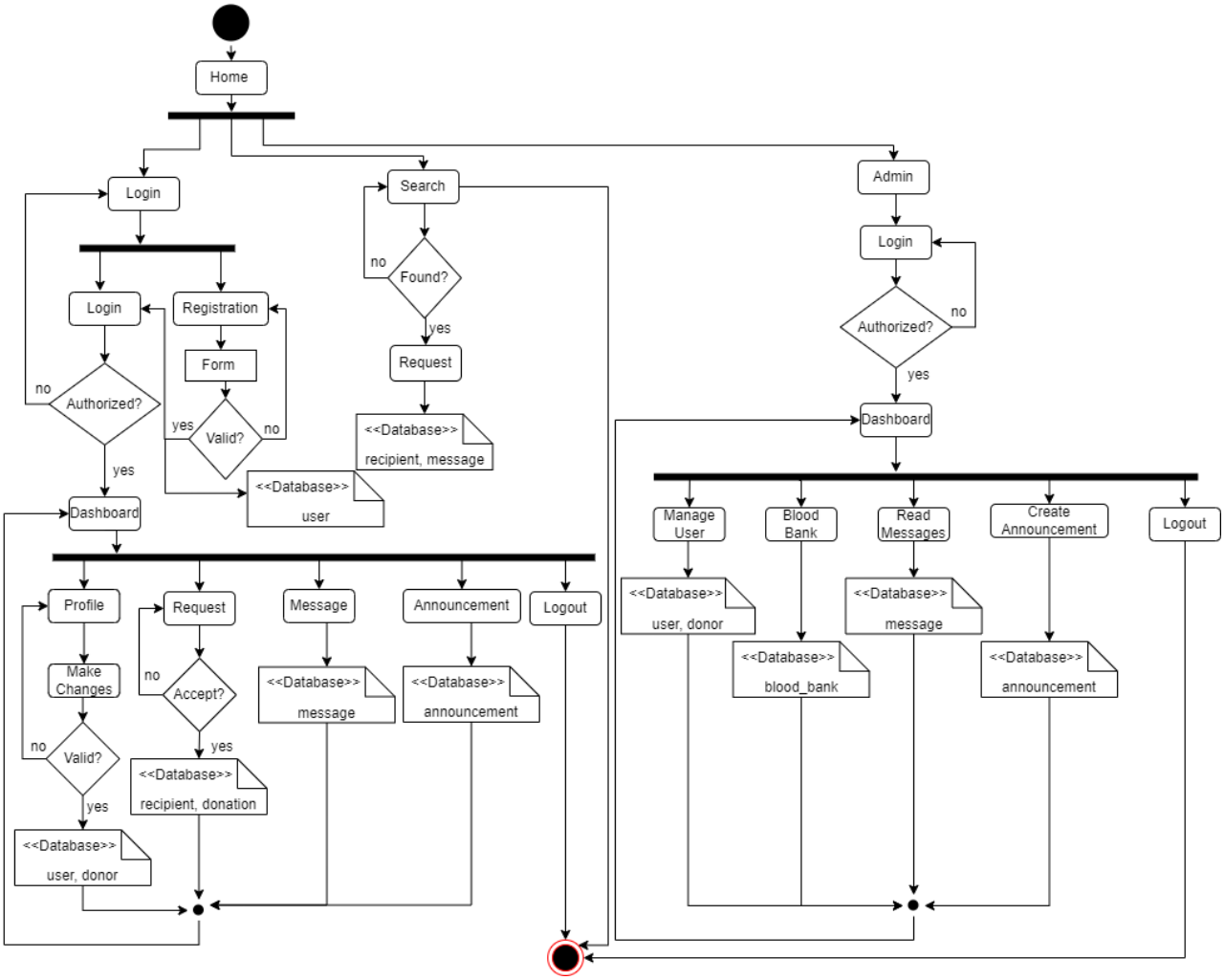

Figure 2.6: Activity Diagram

Chapter 3

Technologies

3.1 Software

3.1.1 Xampp

XAMPP is a popular cross-platform web server that allows programmers to write and test their code on a local web server. It was created by the Apache Friends, and the audience can amend or modify its native source code. It includes Apache HTTP Server, MariaDB, and interpreters for PHP and Perl, among other computer languages. It's available in 11 languages and runs on a variety of platforms, including Windows' IA-32 package, Mac OS X's x64 package, and Linux's x64 package. Before publishing a website or client to the main server, XAMPP allows a local host or server to test it on computers and laptops. It is a platform that provides a suitable environment for testing and verifying the functionality of projects based on Apache, Perl, MySQL, and PHP using the host's system.

Figure 3.1: Xampp Web Server

3.1.2 Brackets

Brackets is a source code editor with a primary focus on web development. It is written in JavaScript, HTML and CSS. Brackets is cross-platform, available for macOS, Windows, and most Linux distributions. The main purpose of Brackets is its live HTML, CSS and JavaScript editing functionality. Brackets supports codes from multiple file types from C++, C, VB-Script to Java, JavaScript, HTML, Python, Perl and Ruby. The complete list comprises more than 38 file types. This gives the user flexibility to work on various files of a project simultaneously.

Figure 3.2: Brackets (text editor)

3.2 Languages

3.2.1 Front-end

HTML, CSS, JavaScript

The HyperText Markup Language (HTML) is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript. HTML is at the core of every web page, regardless the complexity of a site or number of technologies involved. CSS (Cascading Style Sheets) is used to style and layout web pages — for example, to alter the font, color, size, and spacing of your content, split it into multiple columns, or add animations and other decorative features. JavaScript is a logic-based programming language that can be used to modify website content and make it behave in different ways in response to a user's actions.

Figure 3.3: HTML, CSS and JavaScript

Bootstrap

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains HTML, CSS and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components. It is designed to enable responsive development of mobile-first websites, Bootstrap provides a collection of syntax for template designs.As a framework, Bootstrap includes the basics for responsive web development, so developers only need to insert the code into a pre-defined grid system. Web developers using Bootstrap can build websites much faster without spending time worrying about basic commands and functions.

Figure 3.4: Bootstrap

3.3 Back-end

PHP

PHP (Hypertext Preprocessor) is an open-source, interpreted, and object-oriented scripting language that can be executed at the server-side and is embedded in HTML. PHP is used for server-side programming which will interact with databases to retrieve information, storing, email sending, and provides content to HTML pages to display on the screen. When a web server receives a script, it will process the request and send output to a web browser in an HTML format. A web server database stores the information so other users can't access the data and source code.

Figure 3.5: PHP Language

3.4 Database

3.4.1 MySQL

MySQL is the most popular Open Source Relational SQL database management system. It is supported by Oracle Company. It is fast, scalable, and easy to use database management system in comparison with Microsoft SQL Server and Oracle Database. It is commonly used in conjunction with PHP scripts for creating powerful and dynamic server-side or web-based enterprise applications. It is developed, marketed, and supported by MySQL AB, a Swedish company, and written in C programming language and C++ programming language. MySQL supports many Operating Systems like Windows, Linux, MacOS, etc. with C, C++, and Java languages.

Figure 3.6: MySQL

Chapter 4

Implementation

4.1 General Pages

In our homepage,

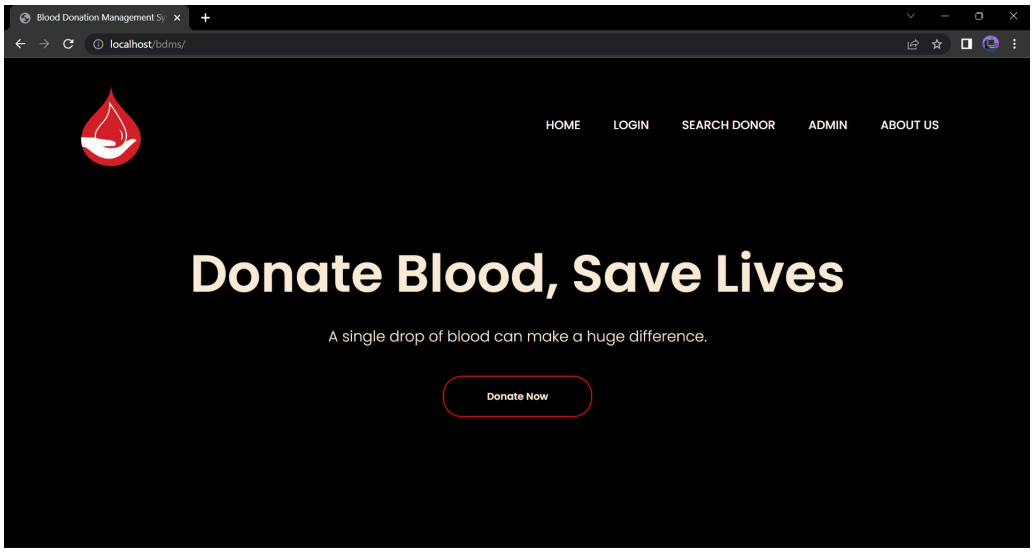

Figure 4.1: Homepage

In search blood,

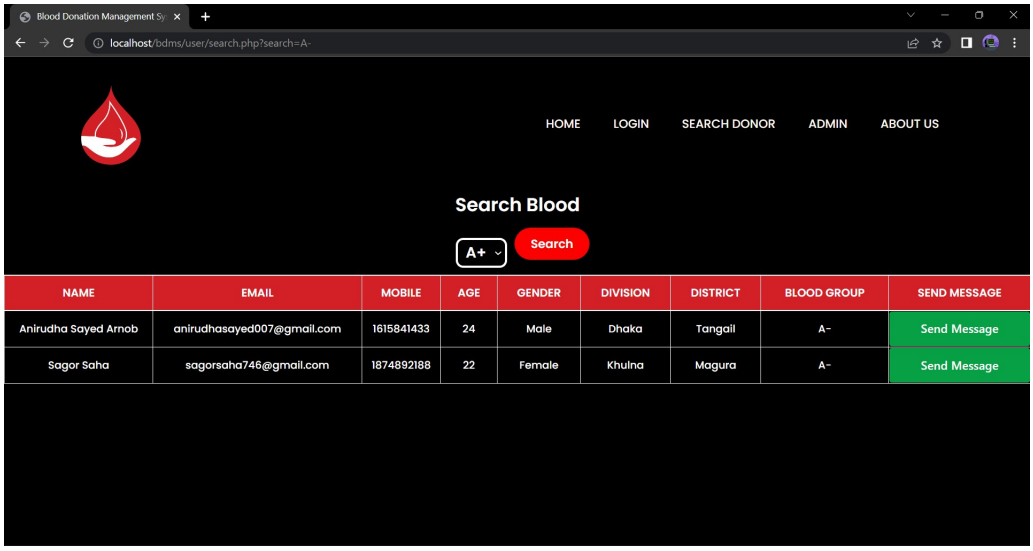

Figure 4.2: Search Blood

In about us,

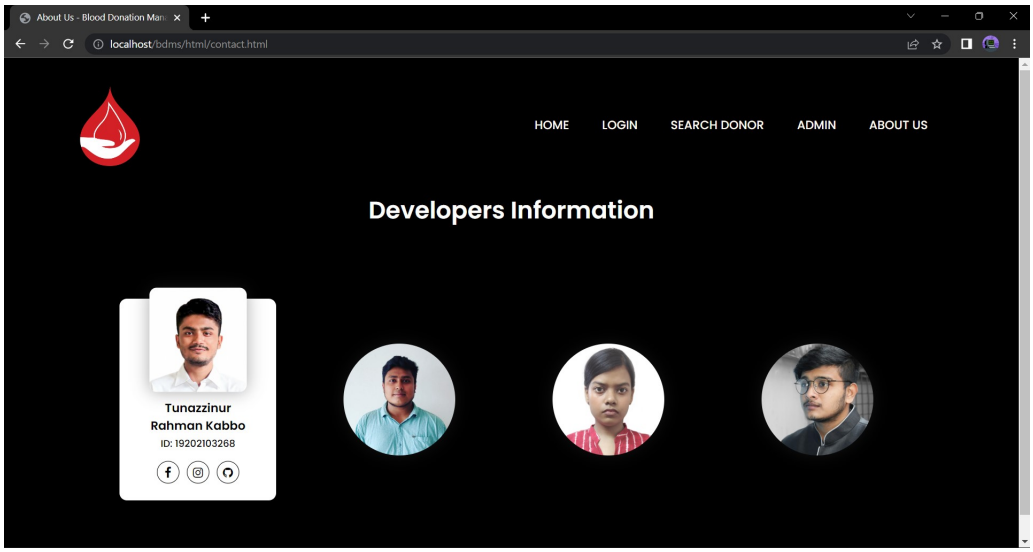

Figure 4.3: About Us

4.2 Donor Panel

In login page,

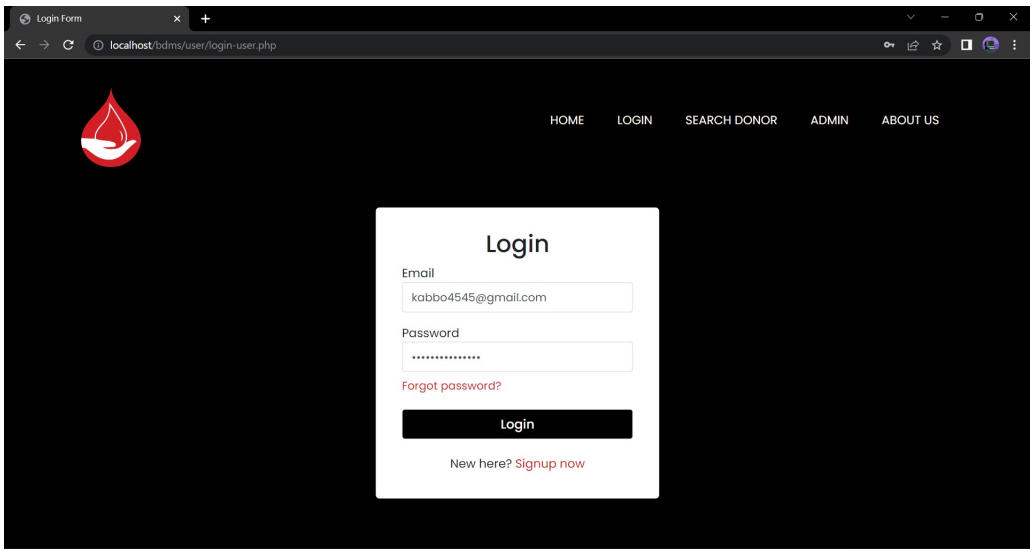

Figure 4.4: Login Page

In signup page,

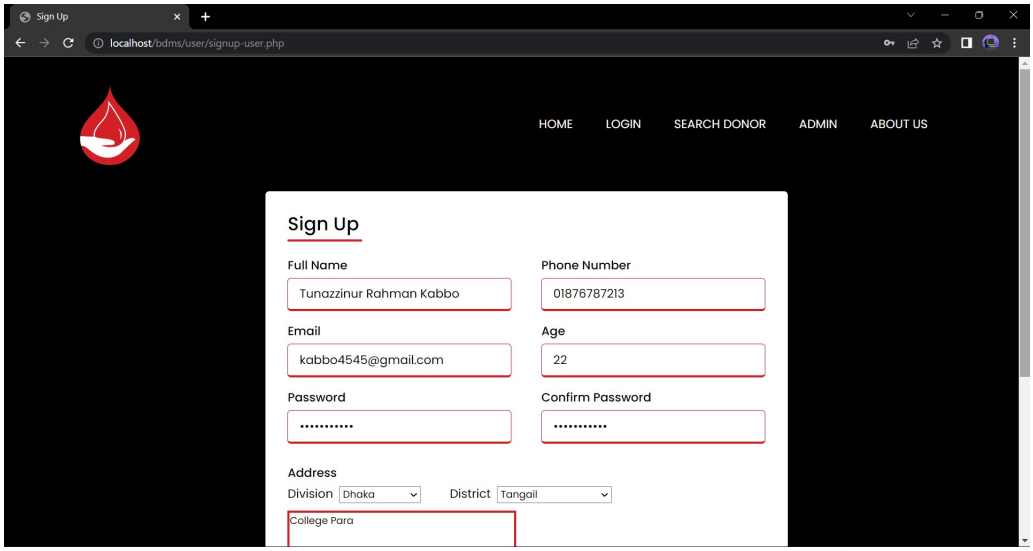

Figure 4.5: Signup Page

In user dashboard,

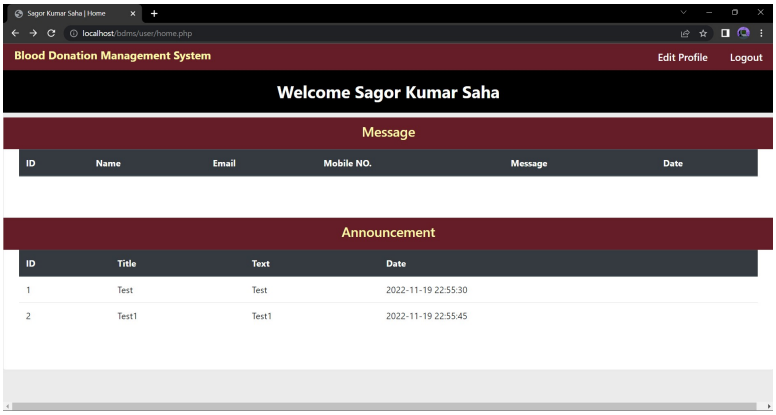

Figure 4.6: User Dashboard

In user profile edit,

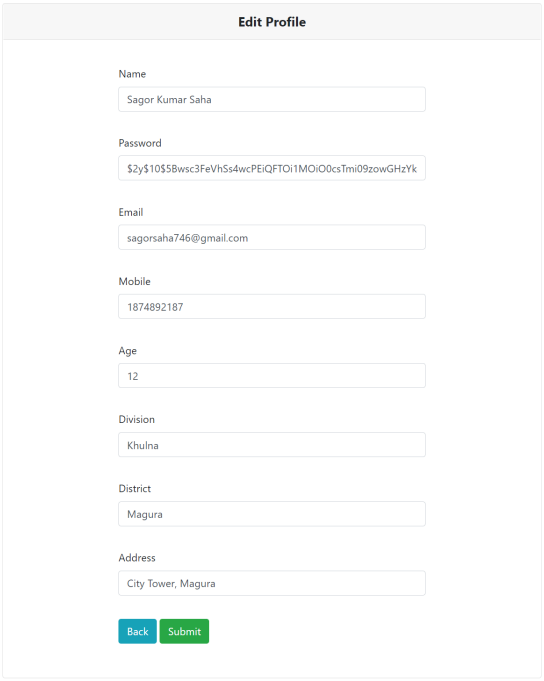

Figure 4.7: User Profile Edit

4.3 Admin Panel

In admin login page,

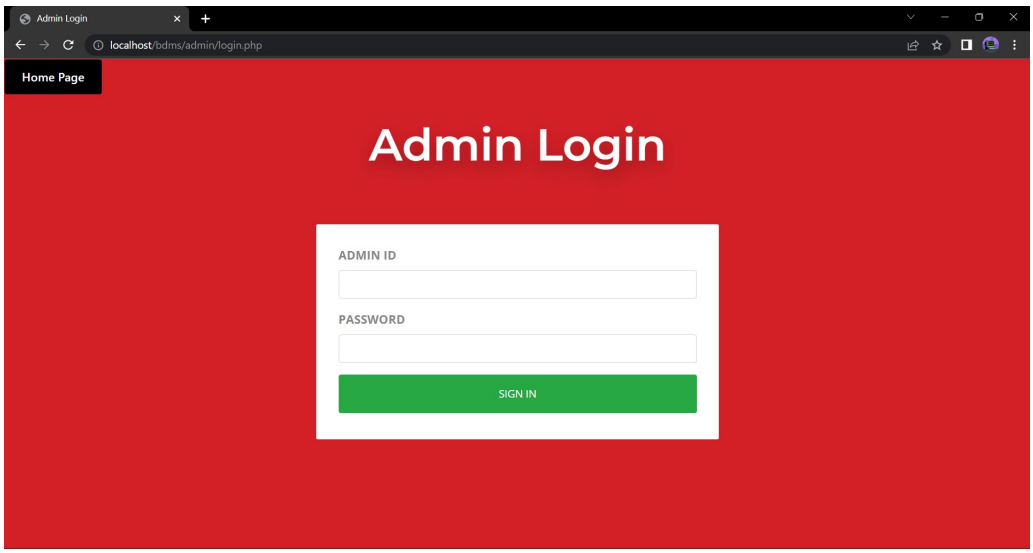

Figure 4.8: Admin Login Page

In admin dashboard,

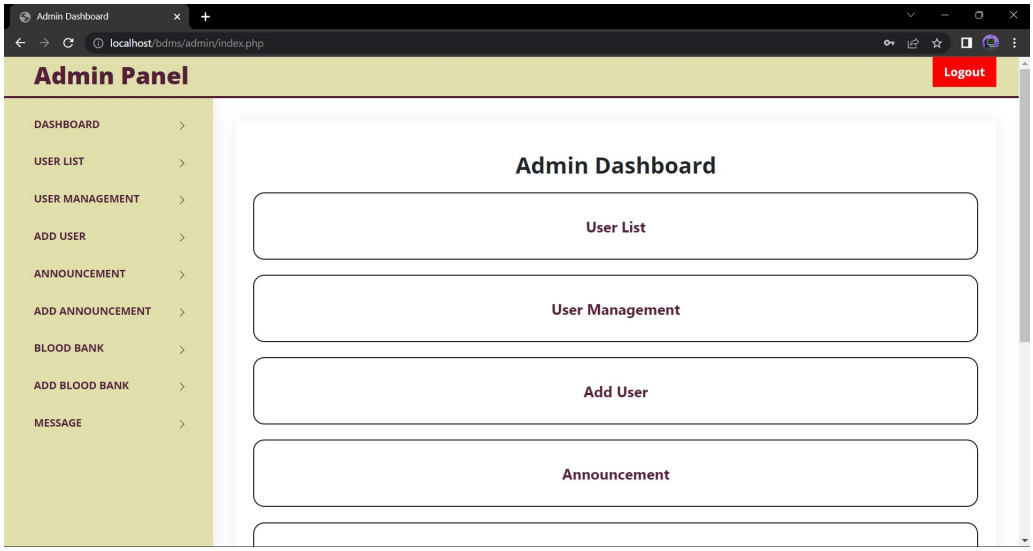

Figure 4.9: Admin Dashboard

In user list,

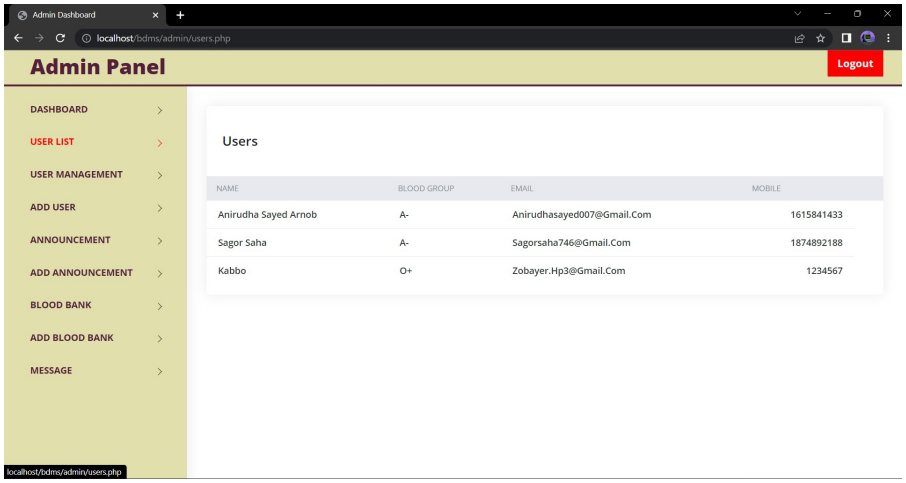

Figure 4.10: View User List

In user management section,

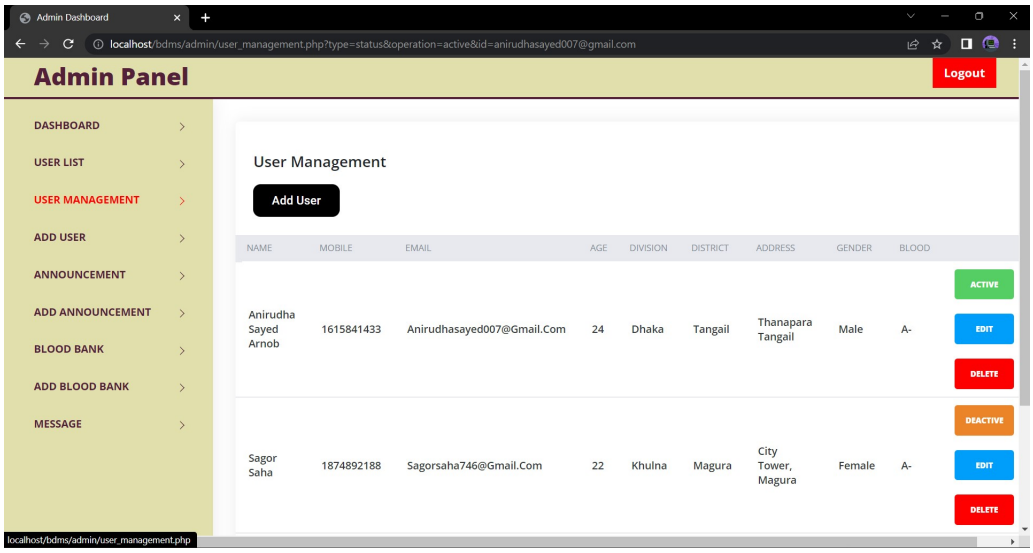

Figure 4.11: User Management

In add user,

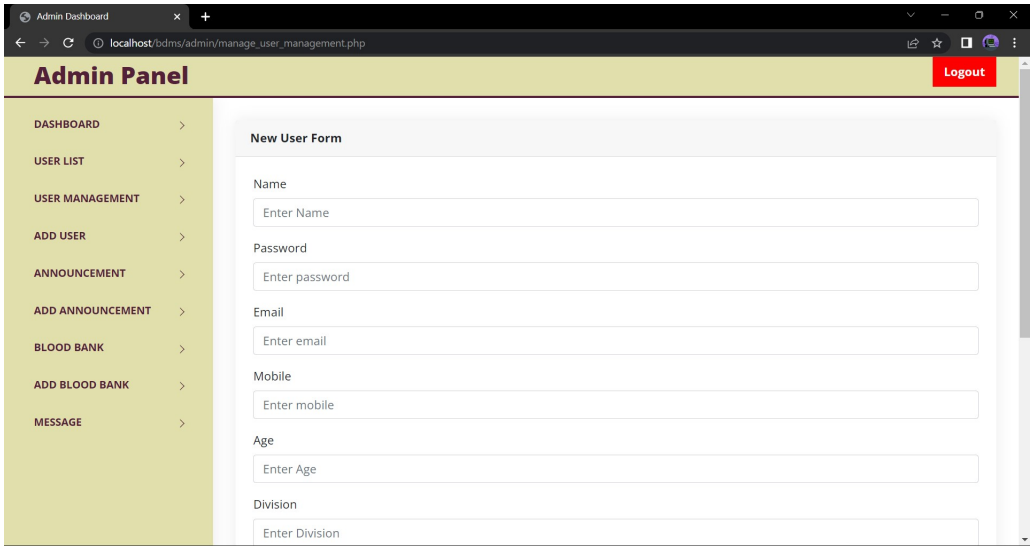

Figure 4.12: Add User

In announcement section,

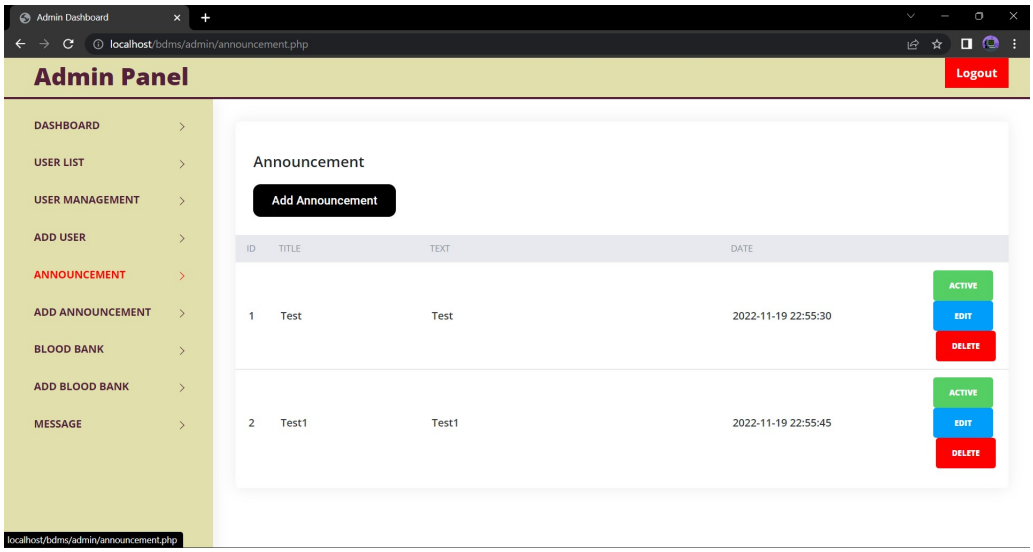

Figure 4.13: View Announcement

In add announcement section,

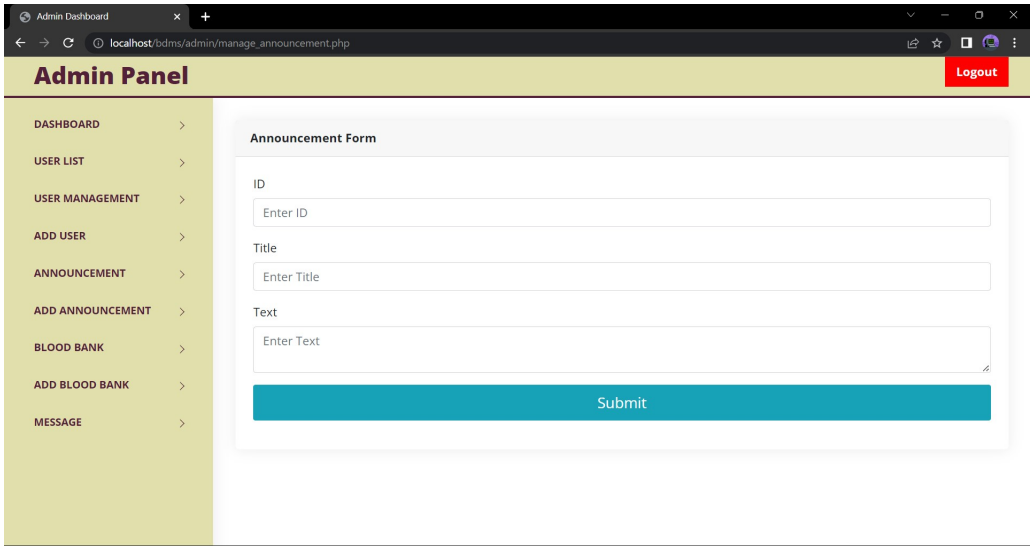

Figure 4.14: Add Announcement

In blood bank section,

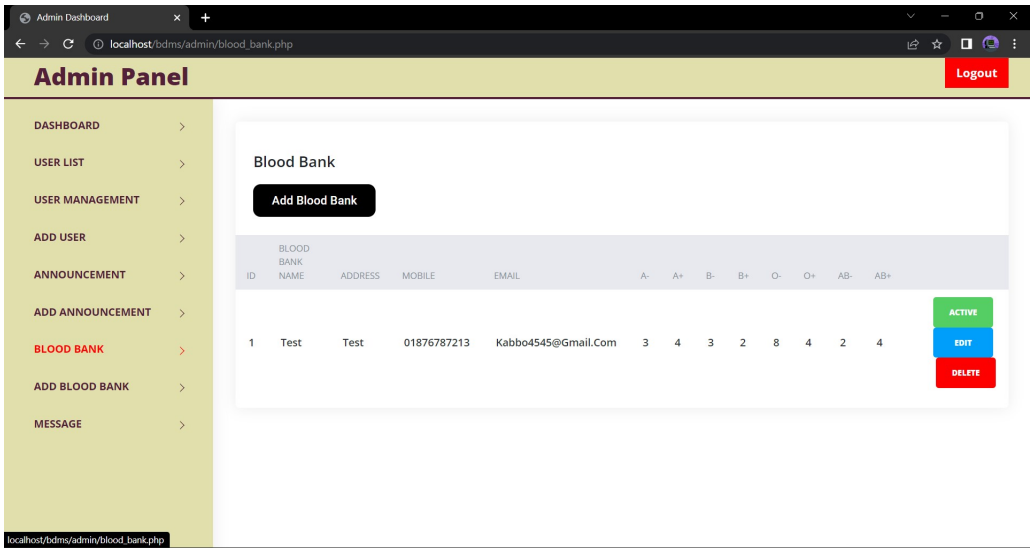

Figure 4.15: View Blood Bank

In add blood bank section,

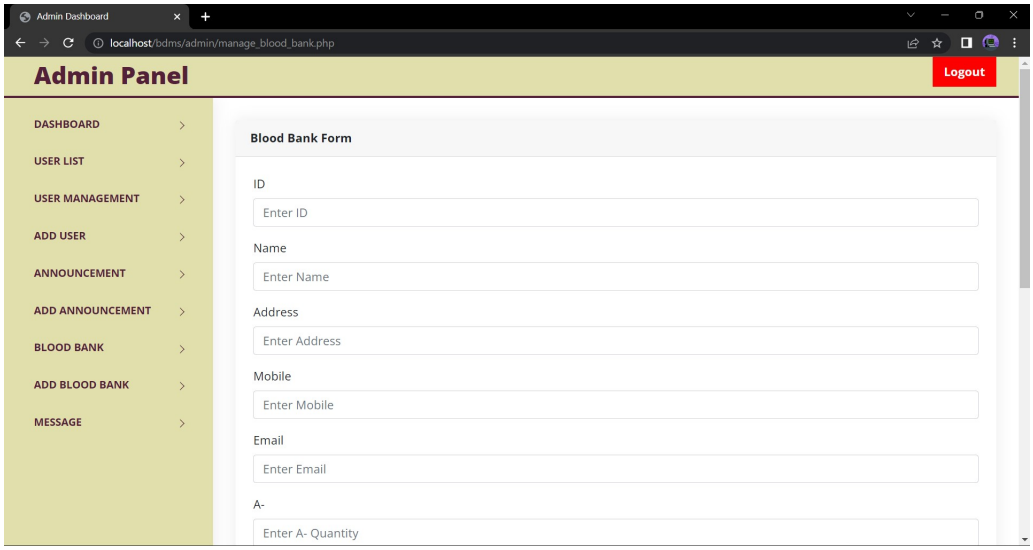

Figure 4.16: Add Blood Bank

In viewing messages section,

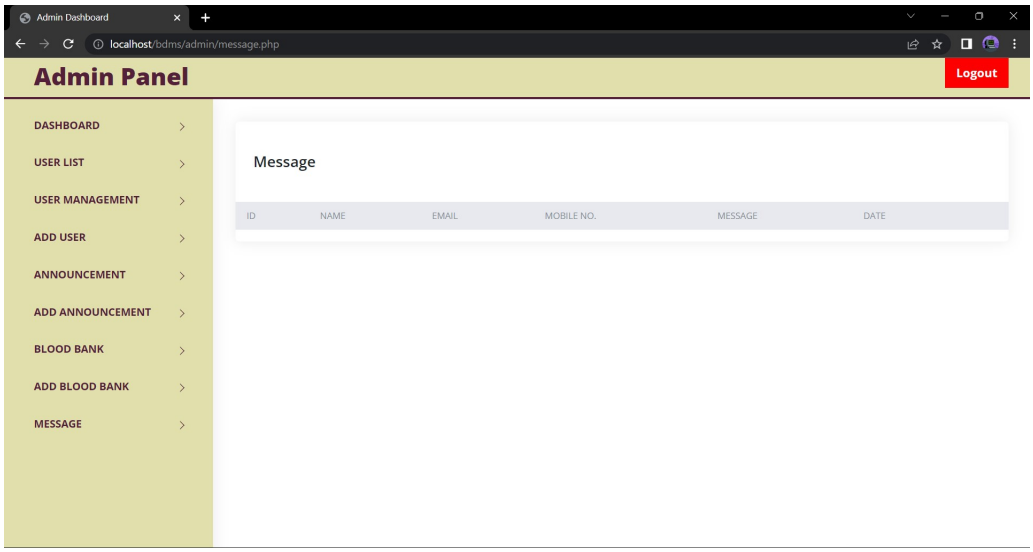

Figure 4.17: View Message

Chapter 5

Conclusion

5.1 Future Scope In This Sector

Our system can be manipulated in various important works and can be implemented easily if we can reach our goal. Although a lot of works are being done each and every day of this world. But use of blood donation management reviews from different websites and with the help of our work, this can be used for far better works which are not done yet with that much efficiency. We thought about our work to be used in future works. Some are given bellow:

1. **Blood Camp Management and Reporting :**
    - Keeps track of all aspects of the camp, from staffing assignments to the facilities provided at the camp site.
    - Assigns donors to specific camps and generates a camp organizer report.
    - Generation of an automated report of camp information for submission to the government.
2. **Collaborating with Blood Bank :**
    - Give an access to the blood bank stuffs to update data on a regular basis.
    - Let receivers know the exact location of the blood bank through map.
3. **Donor Test Results Management and Adverse Reaction Data Management :**

- Offers donor options that may be filtered.
- Download all reports in Excel
- The reports are extremely adjustable and may be customized to present data according to the needs of the institution

5.2 Conclusion

The "Blood Donation Management System" initiative seeks to play a critical role in saving human lives and reducing fear in emergency circumstances.Any blood receiver can collect and store their desired blood from this web application. Besides, this web application will act as a social service application.