

Design and Implementation of SaveLivesBD A Web-Based Blood Donation System

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Submitted in partial fulfillment of the requirements for the degree of
Bachelor of Science in Computer Science and Engineering



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
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APPROVAL

This project titled “Design & Implementation of SaveLives BD And Blood Donation System” has been submitted by Md. Meraj Mondol (CSE2203027004), Mowsomi Akter (CSE2203027041), Harun Or Rashid (CSE2102023068) to the Department of Computer Science and Engineering, Sonargaon University (SU), has been and accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering and approved as to its style and contents..

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DECLARATION

We hereby declare that the project “**Design & Implementation of SaveLives BD And Blood Donation System**” is the result of our own original work and has been carried out under the supervision of our honourable supervisor **Salma Tabashum**, Lecturer & Coordinator, Department of Computer Science and Engineering, Sonargaon University (SU) . This project has been submitted in partial fulfilment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering.

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ABSTRACT

In today's world, the availability of blood during emergency situations remains a critical challenge in healthcare systems, especially in developing countries like Bangladesh. Many patients suffer or even lose their lives due to the unavailability of suitable blood donors at the right time. To address this issue, this project introduces **“Design & Implementation of SaveLives BD and Blood Donation System”**, a web-based platform designed to efficiently connect blood donors with patients in need.

ACKNOWLEDGEMENT

At the very beginning, we would like to express my deepest gratitude to the Almighty Allah for giving us the ability and the strength to finish the task successfully within the scheduled time.

We are auspicious that we had the kind association as well as supervision of **Salma Tabashum**, Lecturer & Coordinator, Department of Computer Science and Engineering, Sonargaon University, whose heartfelt and valuable support with the best concern and direction acted as a necessary recourse to carry out our project.

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We are also thankful to all our teachers during our whole education for exposing us to the beauty of learning.

Finally, our deepest gratitude and love to my parents for their support, encouragement, and endless love.

LIST OF ABBREVIATIONS

CSS	Cascading Style Sheets.
HTML	Hyper Text Markup Language.
JS	JavaScript.
MySQL	My Structured Query Language.
PHP	Hypertext Preprocessor.

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CHAPTER 1

INTRODUCTION

1.1 Introduction:

Blood donation is one of the most essential components of modern healthcare systems, playing a critical role in saving human lives. Every day, thousands of patients require blood transfusions due to accidents, surgeries, childbirth complications, and various medical conditions such as anaemia and cancer. Despite its importance, the availability of blood at the right time remains a major challenge, particularly in developing countries like Bangladesh.

In many cases, patients and their families struggle to find suitable blood donors during emergencies. The traditional methods of searching for donors—such as contacting friends and relatives, making phone calls, or posting on social media—are often slow and unreliable. These methods lack organization and real-time coordination, which leads to delays and sometimes results in life-threatening situations.

To address these issues, the project titled “SaveLives BD: Blood Donation & Emergency Support System” has been developed. This web-based system aims to create a centralized platform where blood donors and recipients can easily connect. Donors can register their information, including blood group, location, and contact details, while users can search for available donors quickly based on their needs.

The system focuses on improving efficiency, reducing response time, and ensuring that patients can **access** blood support without unnecessary delays. By utilizing modern web technologies and user-friendly interfaces, the platform ensures accessibility for a wide range of users.

1.2 Problem Statement:

Finding suitable blood donors in emergency situations is a significant problem in the current healthcare system. In most cases, there is no centralized database that stores donor information in an organized manner. As a result, patients or their relatives must rely on personal networks or social media platforms, which are not always effective.

The absence of a proper system leads to several issues, including delays in communication, lack of accurate information, and difficulty in locating nearby donors. During emergencies, even a small delay can result in serious consequences or loss of life. Therefore, there is a strong need for an efficient and reliable system that can quickly connect donors with patients.

1.3 Background:

Traditionally, blood donation management has been handled manually or through informal networks. Hospitals may maintain limited records of donors, but these records are often outdated or inaccessible to the public. Social media platforms, although widely used, do not provide structured or verified information, making the process inefficient.

With the advancement of technology, there is an opportunity to replace these outdated systems with digital solutions. Web-based platforms can store, manage, and retrieve donor information efficiently, providing users with accurate and real-time results. This project is based on the concept of transforming traditional methods into a modern, technology-driven system.

1.4 Motivation:

The primary motivation behind developing the SaveLives BD system is to reduce the suffering caused by the unavailability of blood during emergencies. Many lives can be saved if a reliable and fast system is available to locate donors instantly.

Another motivation is to utilize technology for social good. By creating a digital platform, it becomes possible to bridge the gap between donors and recipients, improve communication, and increase awareness about blood donation. This project aims to contribute positively to society by making the blood donation process more efficient and accessible.

1.5 Conclusion:

In conclusion, the current system of finding blood donors is inefficient and time-consuming, especially during emergencies. There is a clear need for a centralized and digital solution that can streamline the process and reduce delays. The SaveLives BD system addresses this need by providing a fast, reliable, and user-friendly platform. This chapter highlights the importance of the problem and sets the foundation for the development of the proposed system.

CHAPTER 2

BACKGROUND STUDY

2.1 Introduction:

The field of healthcare is rapidly evolving with the advancement of digital technology, and blood donation systems are no exception. Blood is an essential component of medical treatment, and its timely availability can make the difference between life and death. However, traditional blood donation systems have long struggled with inefficiencies, lack of coordination, and delays in communication.

In recent years, digital transformation has played a significant role in improving various sectors, including healthcare. Modern blood donation systems are gradually shifting from manual and paper-based processes to automated and web-based platforms. These digital systems aim to provide faster access to donor information, improve communication between donors and recipients, and ensure better management of data.

Despite these advancements, many regions, especially in developing countries, still lack a fully functional and efficient digital blood donation system. This creates a gap between the demand and supply of blood, particularly during emergency situations. Therefore, understanding the background and limitations of existing systems is essential for developing an improved solution like SaveLives BD.

2.2 Literature Review:

A literature review of existing blood donation systems reveals that several approaches have been implemented to address the challenges of blood availability. Traditional systems primarily rely on hospital records, blood banks, and voluntary donor lists. While these systems provide a basic framework, they often lack real-time updates and accessibility for the general public.

With the growth of the internet, social media platforms such as Facebook groups and messaging applications have become popular tools for requesting blood donations. Although these platforms help spread information quickly, they are not structured or reliable systems. Information shared on these platforms may be incomplete, outdated, or unverified, leading to confusion and inefficiency.

Several web-based and mobile applications have been developed to improve blood donation services. These systems typically include features such as donor registration, search functionality, and communication tools. However, many of these systems still face challenges such as limited user adoption, lack of location-based services, and insufficient administrative control.

Research also indicates that integrating location-based technology and real-time data can significantly enhance the effectiveness of blood donation systems. Systems that provide nearby donor search and quick communication channels are more successful in emergency situations. However, many existing solutions do not fully utilize these capabilities.

2.3 Problem Analysis:

The analysis of current blood donation systems highlights several critical issues that hinder their effectiveness. One of the major problems is the absence of real-time donor tracking. Most systems do not provide updated information about donor availability, making it difficult for users to find suitable donors quickly.

Another significant issue is the lack of a centralized database. Donor information is often scattered across different platforms, including hospitals, social media, and personal contacts. This fragmentation leads to inefficiency and increases the time required to locate donors.

Communication gaps also pose a major challenge. In traditional systems, there is no direct and efficient communication channel between donors and recipients. As a result, misunderstandings and delays are common.

Additionally, many systems lack proper administrative control. Without a dedicated management system, it becomes difficult to verify donor information, maintain data accuracy, and ensure system reliability. Security and privacy concerns further complicate the situation, as sensitive personal information needs to be protected.

Finally, the absence of user-friendly interfaces in some systems discourages people from using them. A complex or poorly designed system can reduce user engagement and limit its overall effectiveness.

2.4 Summary:

In summary, the current blood donation systems face several limitations, including inefficiency, lack of real-time data, poor communication, and absence of centralized management. While some digital solutions exist, they are not fully optimized to meet the needs of users during emergency situations.

These challenges highlight the necessity of developing an improved system that can address these issues effectively. The proposed system, SaveLives BD, aims to overcome these limitations by providing a centralized, user-friendly, and efficient platform. By incorporating modern technologies and features such as location-based search and administrative control, the system seeks to enhance the overall blood donation process and contribute to saving lives.

CHAPTER 3

PROPOSED SYSTEM

SaveLives BD – System Design Report

3.1 Introduction:

SaveLives BD is a web-based blood donation management system designed to connect blood donors with users (patients or recipients) who need blood urgently. The main purpose of this system is to reduce the time required to find suitable blood donors and improve the efficiency of blood donation coordination.

In many emergency situations, patients suffer due to the unavailability of blood donors at the right time. **SaveLives BD** solves this problem by maintaining a centralized database of donors and providing quick search and request functionality. The system provides a user-friendly platform where donors can register their information and users can easily search for available donors according to blood group and location.

The system also includes an admin panel for monitoring donor information, managing user activities, and maintaining overall system security and reliability. **SaveLives BD** aims to improve communication between donors and recipients and help save lives during emergency situations.

Objectives:

The main objectives of SaveLives BD are:

- To connect blood donors and users efficiently.
- To maintain a structured donor database.
- To allow users to search donors based on blood group and location.
- To provide admin control for system management.
- To reduce the time required to find emergency blood donors.
- To improve communication between donors and recipients.

Scope:

This system is applicable for hospitals, blood banks, and individuals who need emergency blood support. SaveLives BD can be used in both urban and rural areas where quick blood donor communication is necessary.

The system covers the following functionalities:

- Donor registration and profile management.
- User registration and login system.
- Blood request submission.

- Search donor by blood group and location.
- Admin monitoring and data management.
- Secure and organized database management.

The platform can be further expanded in the future by integrating mobile applications, GPS tracking, and real-time notifications.

3.2 Methodology:

The Agile development model is used for developing **SaveLives BD**. Agile is chosen because it allows continuous improvement, flexibility, teamwork, and iterative development. It helps developers quickly respond to changes and improve the system step by step based on user feedback.

Agile Phases:

1. Requirement Gathering:

In this phase, system requirements are collected from users, hospitals, and blood donors. Necessary features such as donor registration, blood searching, login system, and admin management are identified.

2. System Design:

The system architecture, database structure, user interface, and UML diagrams are designed in this phase. A user-friendly interface is planned for better usability.

3. Implementation:

In this phase, coding and development are performed using web technologies. The database and frontend-backend connections are implemented.

4. Testing:

Different testing methods such as UI testing and functional testing are conducted to ensure the system works correctly without errors.

5. Deployment:

After successful testing, the system is deployed for public or organizational use so that users can access the platform online.

6. Feedback and Improvement:

User feedback is collected to identify problems and improve system performance by adding new features and fixing issues.

3.3 System Architecture:

The SaveLives BD system follows a three-tier web application architecture that consists of the Presentation Layer, Application Layer, and Database Layer. This architecture helps the system remain organized, secure, and easy to maintain.

1. Presentation Layer (User Interface):

The presentation layer is the front-end part of the system that users interact with directly. It provides a simple and user-friendly interface for donors, users, and administrators.

Main features of this layer include:

- User registration and login forms
- Blood donor search option
- Blood request submission form
- Donor profile management
- Admin dashboard interface

The interface is designed to be responsive so users can access the system using computers, tablets, or mobile devices.

2. Application Layer (Business Logic):

The application layer handles the main functionality and processing of the system. It acts as a bridge between the user interface and the database.

Responsibilities of this layer include:

- ✓ Verifying user login information.
- ✓ Processing donor registration requests.
- ✓ Searching donors based on blood group and location.
- ✓ Managing blood requests.
- ✓ Controlling admin activities.
- ✓ Validating user input and maintaining security.

This layer ensures that all operations are processed correctly and efficiently.

3.4 Database Layer:

The database layer stores all system information in an organized manner. It maintains records related to donors, users, blood requests, and admin activities.

Stored information includes:

- ✓ Donor personal information.
- ✓ Blood group details.
- ✓ Contact information.
- ✓ User accounts.
- ✓ Blood request history.
- ✓ System management data.

The database ensures fast data retrieval, accuracy, and secure information management.

3.5 System Modules:

The SaveLives BD system is divided into several modules to perform different tasks efficiently.

1. User Module:

The user module allows patients or recipients to access the system and search for blood donors.

Functions of this module:

- ✓ User registration and login.
- ✓ Search donors by blood group.
- ✓ Search donors by location.
- ✓ Send blood requests.
- ✓ View donor information.

2. Donor Module:

The donor module is designed for blood donors who want to register and provide blood support.

Functions of this module:

- ✓ Donor registration.
- ✓ Update donor profile.
- ✓ Add blood group and location details.
- ✓ Receive blood requests.
- ✓ Manage availability status.

3. Admin Module:

The admin module controls and monitors the entire system.

Functions of this module:

- ✓ Manage donor information.
- ✓ Manage user accounts.
- ✓ Monitor blood requests.
- ✓ Remove fake or invalid accounts.
- ✓ Maintain database security.

3.6 Database Design:

The SaveLives BD database is designed to store and manage all information efficiently.

The database contains multiple tables connected through relationships.

Main Database Tables:

Table Name	Description
Users	: Stores user account information
Donors	: Stores donor details and blood group information
Blood Requests	Stores emergency blood request data.
Admin	: Stores admin login and management information

Advantages of Database Design:

- ✓ Fast donor searching.
- ✓ Organized data management.
- ✓ Reduced data redundancy.
- ✓ Improved data security.
- ✓ Easy maintenance and updates.

3.7 Security Features:

Security is an important part of SaveLives BD. The system includes several security mechanisms to protect user data and system access.

Security Features Include:

- ✓ Username and password authentication.
- ✓ Secure login system.
- ✓ Input validation.
- ✓ Protected admin panel.
- ✓ Database backup and recovery.
- ✓ Prevention of unauthorized access.

These features help ensure that the system remains reliable and secure for all users.

3.8 Expected Outcomes:

The SaveLives BD system is expected to provide several benefits for both donors and recipients.

Expected Results:

- ✓ Faster blood donor searching.
- ✓ Improved emergency response.
- ✓ Better communication between donors and users.
- ✓ Organized donor management.
- ✓ Reduced time during emergency situations.
- ✓ Increased awareness of blood donation.

The system will help create a more efficient and accessible blood donation network that can support hospitals, blood banks, and individuals in emergency cases.

3.9 Agile Model :

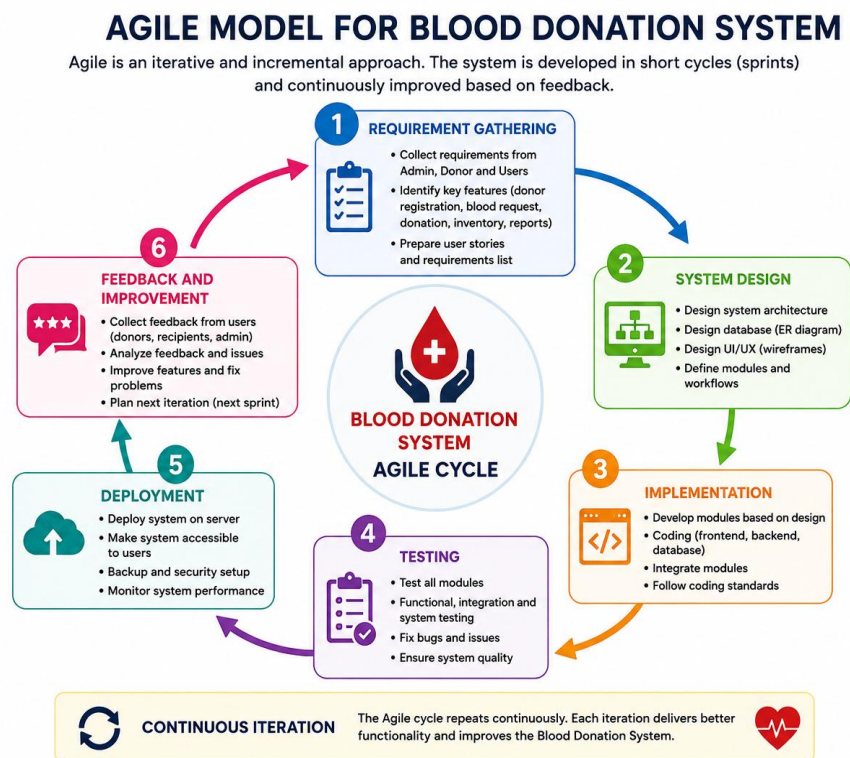


Figure 3.9.1 (Agile Model Diagram)

3.10 Advantages of Agile in this project:

- ✓ Fast development cycles
- ✓ Easy to modify requirements
- ✓ Continuous user feedback
- ✓ Improved use quality

3.11 Use Case Description:

The system has three main actors:

- ✓ Admin
- ✓ Donor
- ✓ User

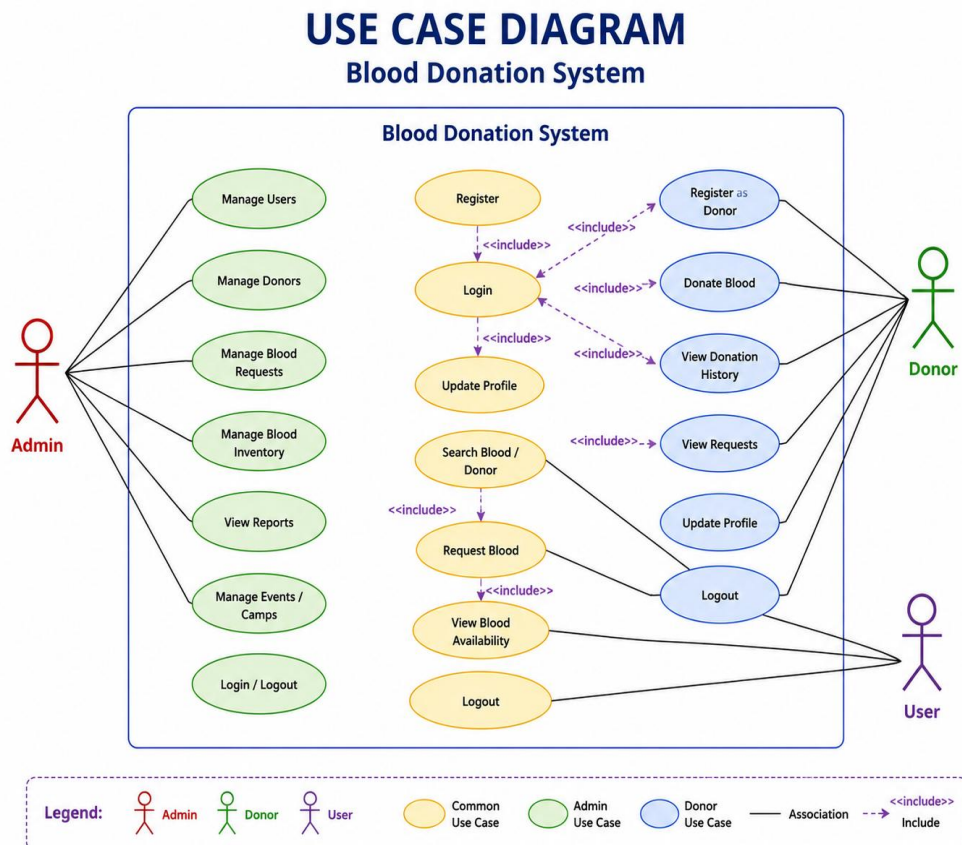


Figure 3.11.2 (Use Case Diagram)

3.12 Main Functionalities:

- ✓ User can register and login to the system.
- ✓ Donor can register and update personal information.
- ✓ User can search donor by blood group and location.
- ✓ User can send blood request to donor.
- ✓ Admin can manage users and donor records.

3.13 System Design (ER Concept Description):

The system is designed using three main entities:

Entities:

1. Donor – stores donor information such as name, blood group, contact, and location.
2. Admin – manages system data and user activities.
3. Request – stores blood request details between user and donor.

Relationships:

- ✓ Admin manages donor records.
- ✓ User creates request.
- ✓ Donor responds to request.

Blood donation system ER diagram

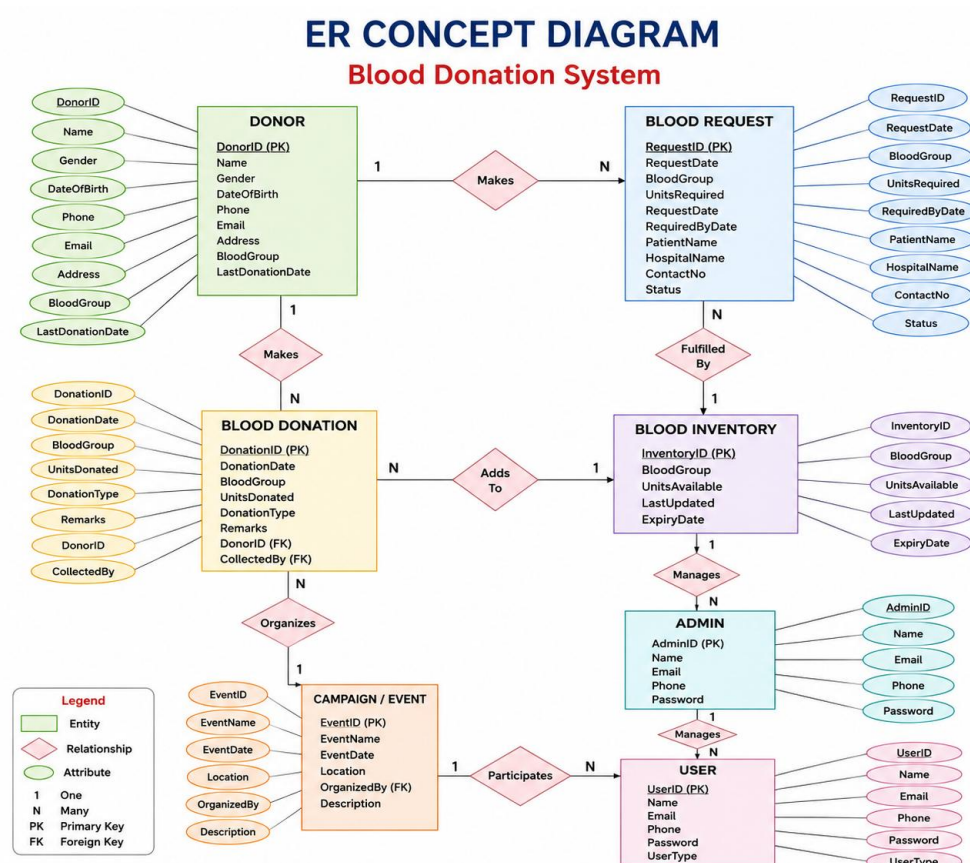


Figure: 3.13.3 (ER Concept Diagram)

3.14 Data Flow Description:

The system follows a simple flow of data:

- ✓ User inputs request or search query.
- ✓ System processes the request using database.
- ✓ System returns matching donor information.
- ✓ Admin updates and manages system data.

Flow Summary:

User/Donor/Admin → System Processing → Database → Output Result

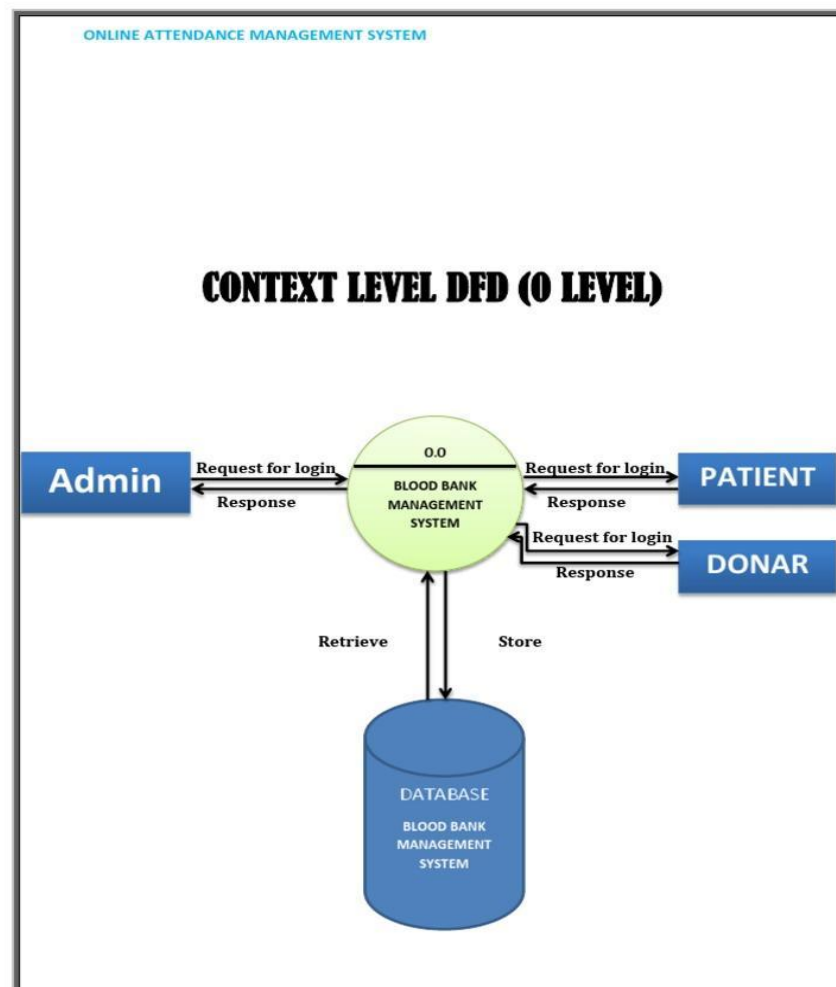


Figure: 3.14.4 (Data Flow Diagram)

3.15 Requirement Analysis:

Requirement analysis defines what the system must do to fulfil user needs.

Functional Requirements:

- ✓ User login and registration system.
- ✓ Add donor information.
- ✓ Search donor by blood group and location.
- ✓ Send blood request.
- ✓ Admin panel for management.

Non-Functional Requirements:

- ✓ Fast response time.
- ✓ Secure authentication system.
- ✓ User-friendly interface.
- ✓ Responsive design for mobile and desktop.

3.16 UML Class Design:

The UI design of SaveLives BD is simple and user-friendly. The goal is to make navigation easy for all types of users.

UI Features:

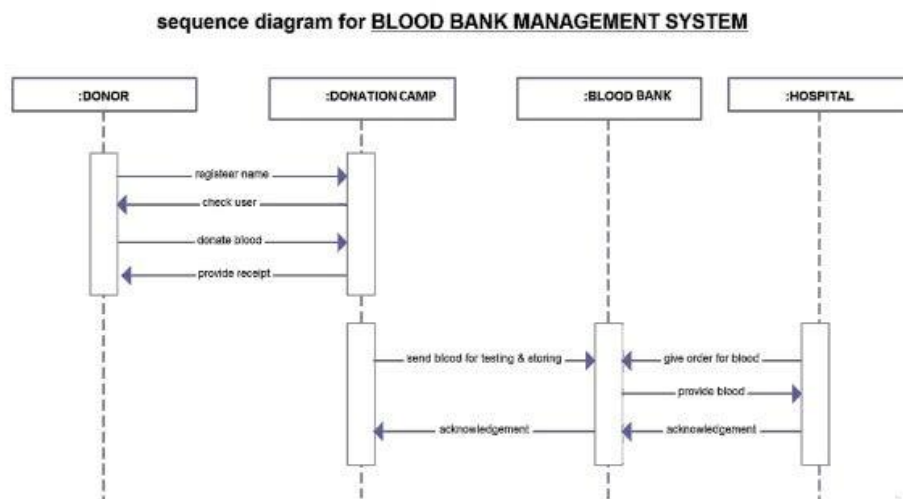


Figure: 3.16.5 (UML Class Diagram)

3.17 UI Design:

UI Design homepage:



Figure: 3.17.6 (Home page)

- ✓ Clean homepage
- ✓ Homepage Accessibility with search option
- ✓ Home with search option
- ✓ About us
- ✓ Admin
- ✓ Admin dashboard
- ✓ Responsive layout (mobile + desktop)
- ✓ Design Principles
- ✓ Minimal design
- ✓ Easy navigation
- ✓ Consistent color theme (red/white blood donation theme)
- ✓ Clear buttons and forms
- ✓ Mission
- ✓ Story
- ✓ Search
- ✓ Donor registration form
- ✓ Edit
- ✓ Login and signup pages

3.18 UI Design home page Accessibility:

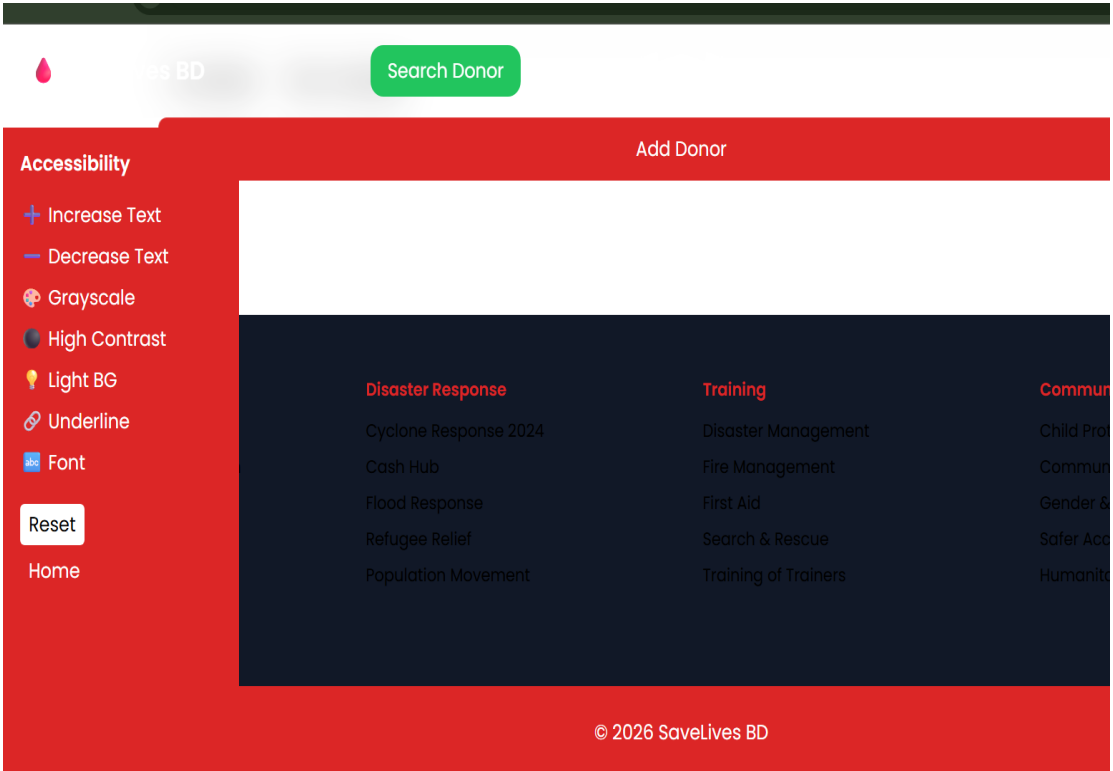


Figure: 3.18.7 (Home page Accessibility)

3.19 Home page with searching:

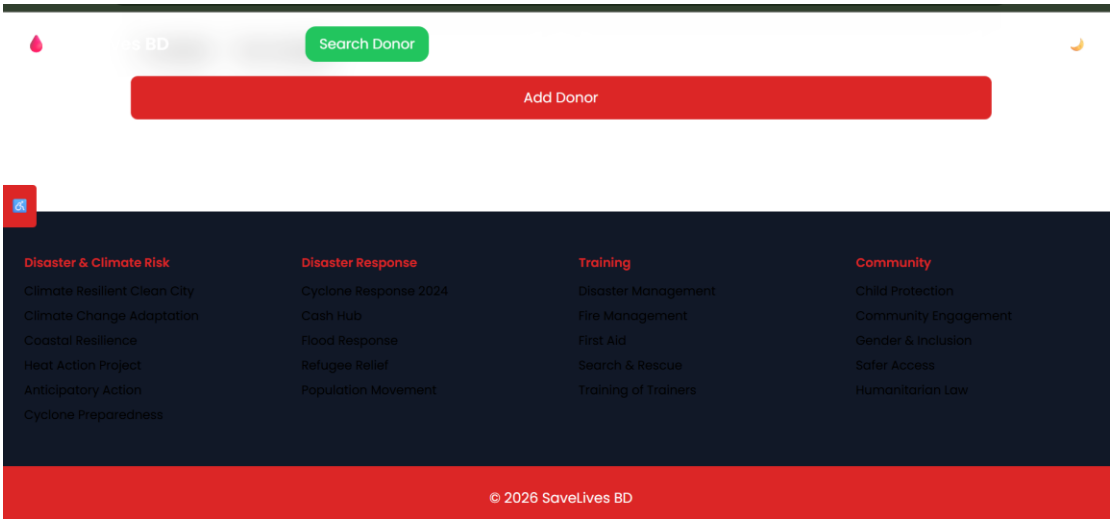


Figure: 3.19.8 Home page (Searching)

3.20 About us:

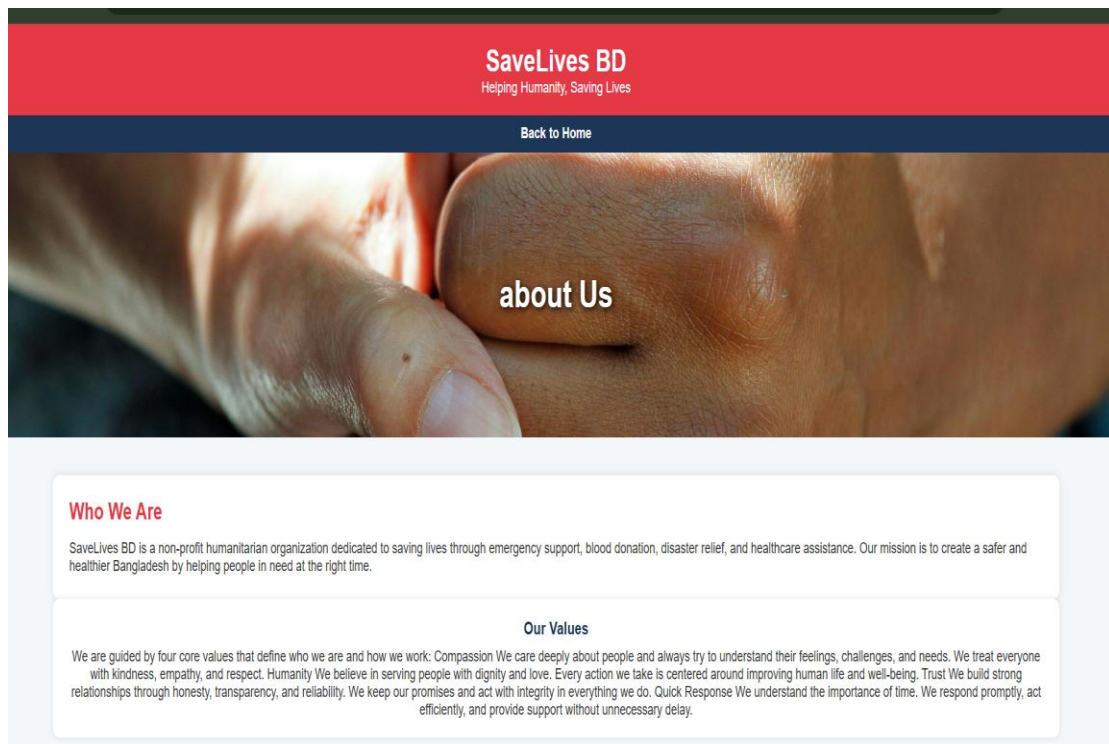


Figure: 3.20.9 (About us page)

3.21 Admin dashboard:

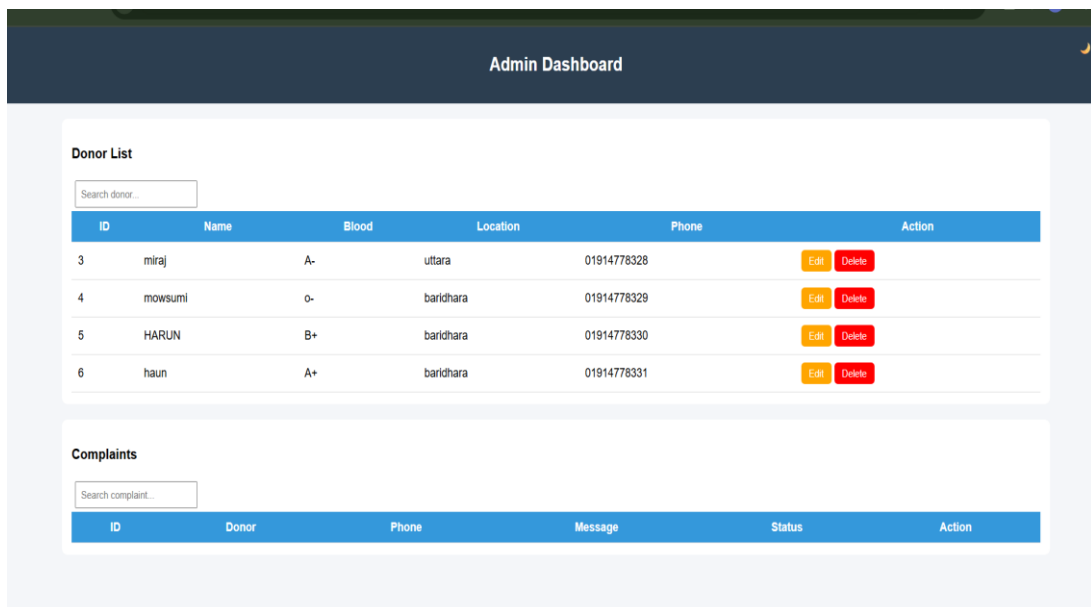
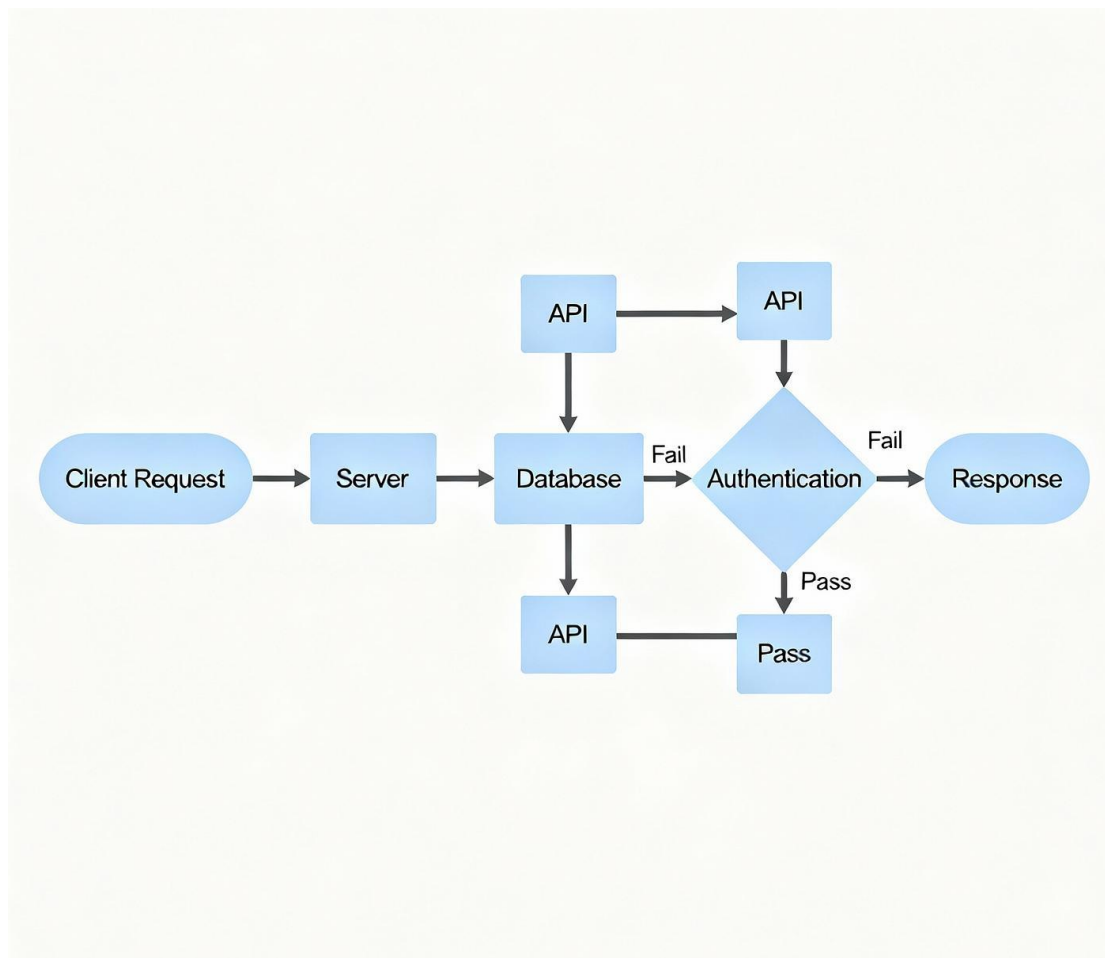


Figure: 3.21.10 (Dashboard of admin)

3.22 Login & signup Diagram:



Figure; 3.22.11 (Login and signup diagram)

A Login and Signup system is an essential part of a Blood Donation System that allows users to securely access the platform and manage their personal information.

The **Signup process** is used when a new user joins the system. In this step, the user creates an account by providing necessary information such as name, email, phone number, blood group, and password. After successful registration, the user becomes a member of the blood donation platform.

Purpose of Signup:

- ✓ Create a new user account.
- ✓ Store donor/user information safely.
- ✓ Allow users to participate in blood donation activities.

3.23 Dashboard:



Figure: 3.23.12 (Dashboard page)

Blood Donation Dashboard (Overview):

A Blood Donation Dashboard is a digital interface that provides a clear and real-time view of all important information related to blood donation activities. It is mainly used by admins, donors, and users to manage and monitor the blood donation system efficiently.

The main purpose of the dashboard is to make blood management simple, fast, and organized. It helps users quickly access important data like available blood groups, donors, requests, and donation history.

Key Features of Blood Donation Dashboard:

1. Donor Information:

- ✓ Displays registered donors, their blood groups, contact details, and donation history.

2. Blood Availability:

- ✓ Shows the current stock of different blood groups (A+, B+, O-, etc.) in real time.

4. Blood Requests:

- ✓ Manages incoming requests from patients or hospitals needing blood urgently.

5. Donation Schedule:

- ✓ Helps donors track their last donation date and upcoming donation eligibility.

3.24 Mission & Vision:

To save lives by ensuring a safe, sufficient, and timely supply of blood for patients in need through voluntary blood donation. We aim to encourage healthy individuals to donate blood regularly and to build a caring community where no life is lost due to lack of blood.

To create a society where every patient has easy access to safe blood at any time, and where voluntary blood donation becomes a common culture of humanity, compassion, and responsibility.

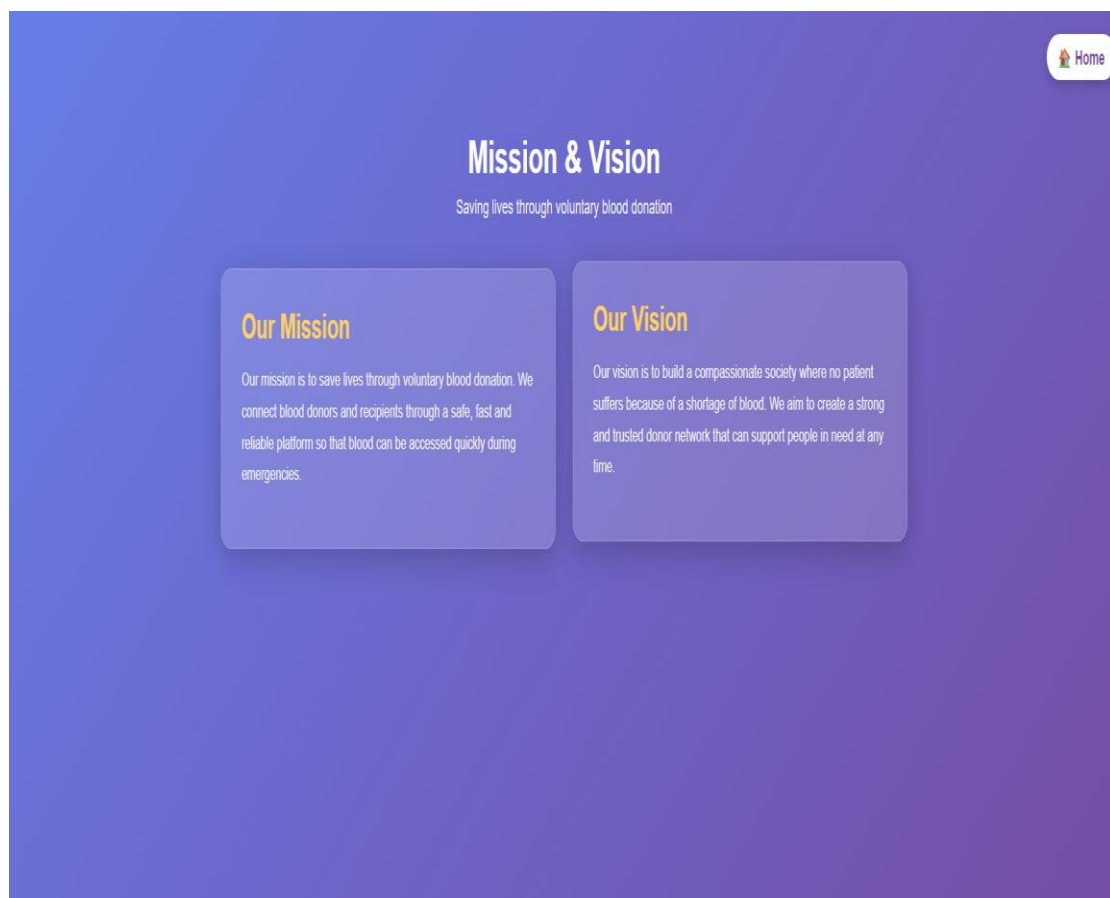


Figure: 3:24.13 (Mission & Vision)

3.25 Story:

There is some short story of world-wide blood donation.

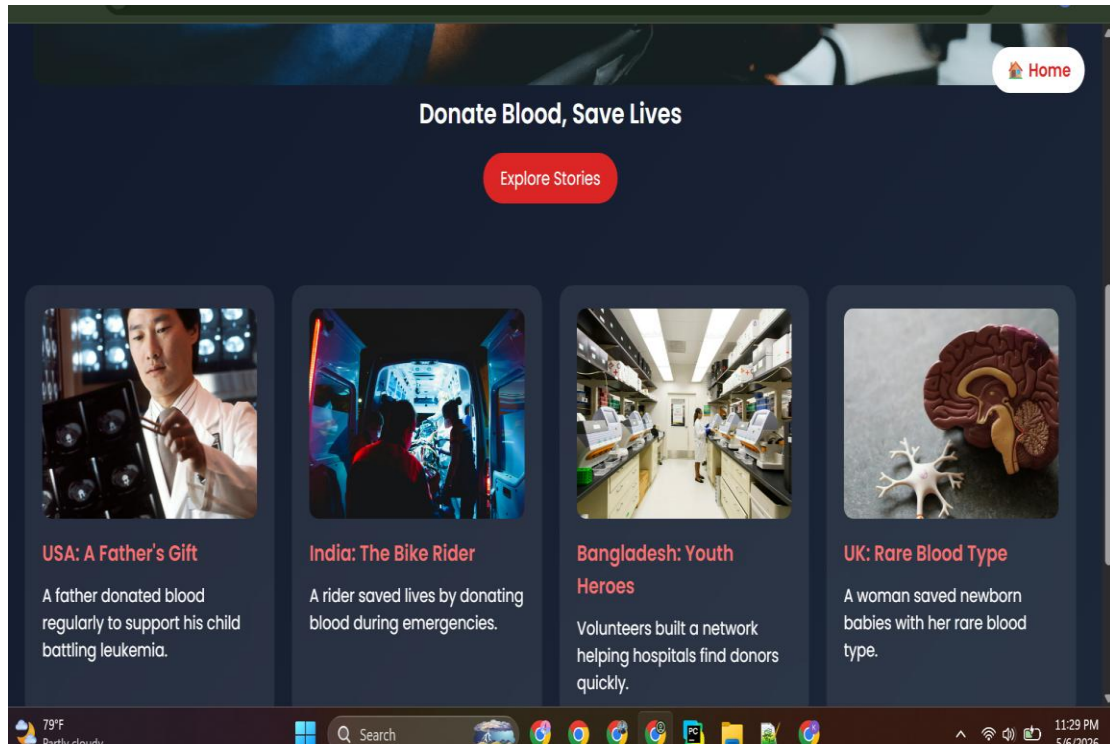


Figure: 3:25.14 (Story)

3.26 Search Option:

Use search option for search blood group.

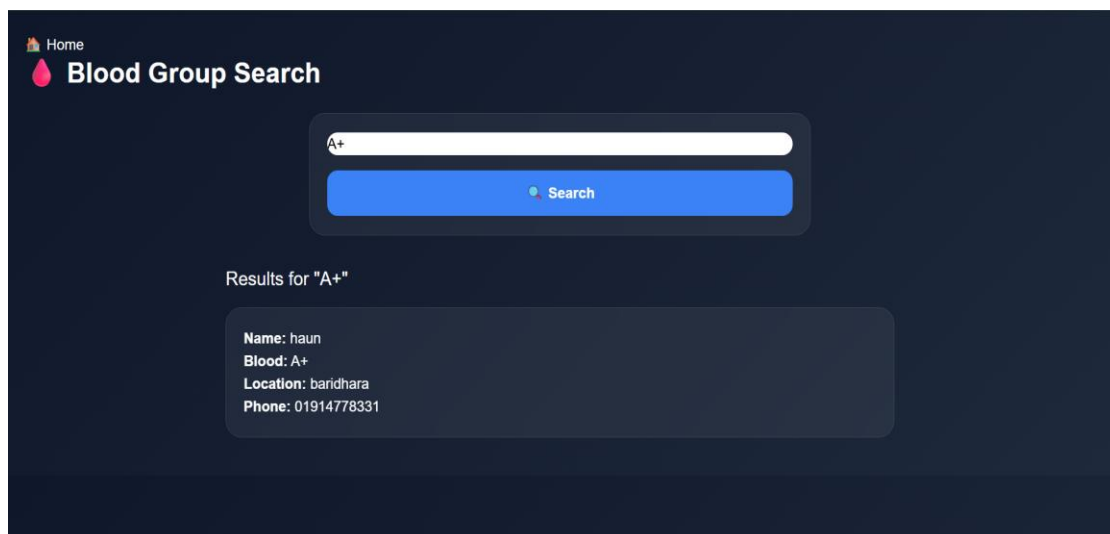
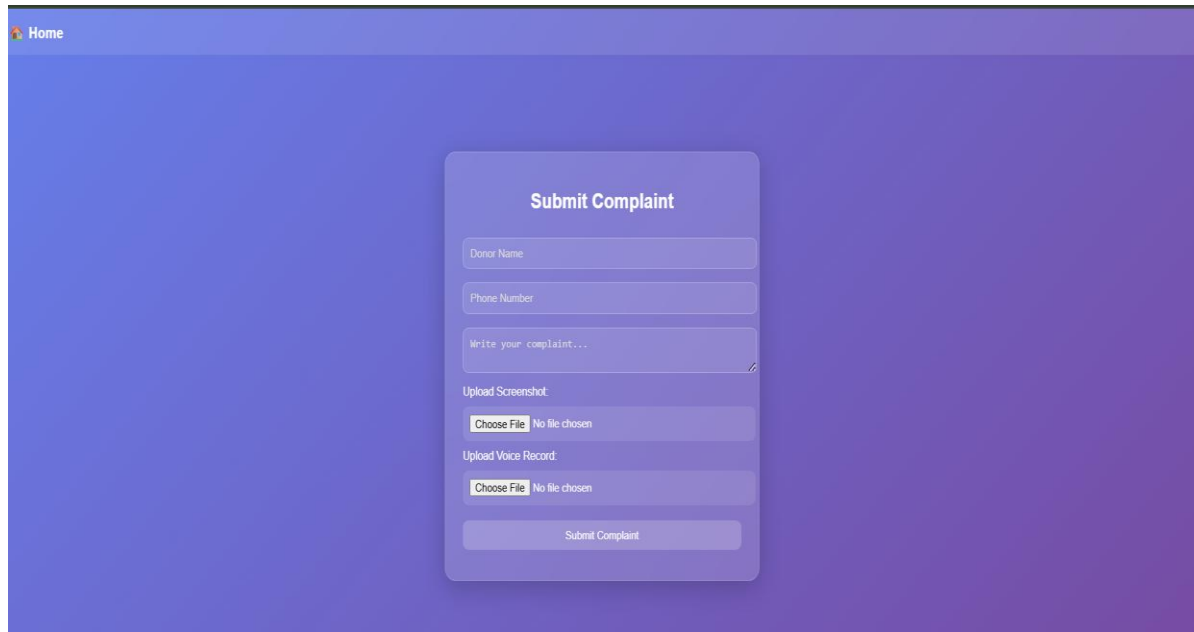


Figure: 3.26.15 (Search Blood Group)

3.27 Donor registration form:

If anyone want to donate blood they can register their name.

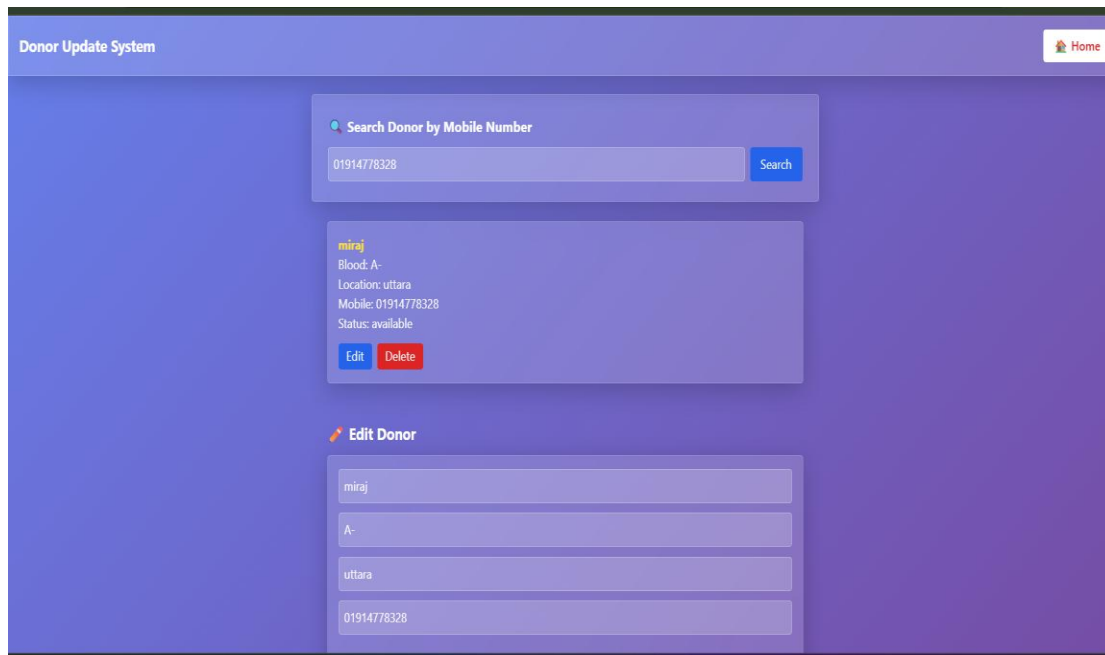


The screenshot shows a web application interface with a purple header bar containing a 'Home' link. The main content area has a dark purple background. Centered on the page is a light purple rounded rectangle titled 'Submit Complaint'. Inside this rectangle, there are four input fields: 'Donor Name', 'Phone Number', 'Write your complaint...' (with a text area icon), and 'Upload Screenshot:'. Below the 'Upload Screenshot' field is a 'Choose File' button and the text 'No file chosen'. Below that is another 'Choose File' button and the text 'No file chosen'. At the bottom of the rectangle is a 'Submit Complaint' button.

Figure: 3.27.16 (Registration from)

3.28 Edit:

Donar can edit her blood donate duration time.



The screenshot shows a web application interface with a purple header bar. The left side of the header is labeled 'Donor Update System' and the right side has a 'Home' link. The main content area has a dark purple background. In the center, there is a light purple rounded rectangle titled 'Search Donor by Mobile Number'. Inside this rectangle, there is a text input field containing '01914778328' and a blue 'Search' button. Below this rectangle is another light purple rounded rectangle containing the following text: 'miraj', 'Blood: A-', 'Location:uttara', 'Mobile: 01914778328', and 'Status: available'. Below this text are two buttons: 'Edit' (blue) and 'Delete' (red). Below this rectangle is another light purple rounded rectangle titled 'Edit Donor'. Inside this rectangle, there are four text input fields containing the following text: 'miraj', 'A-', 'uttara', and '01914778328'.

Figure: 3.28.17(Edit option)

3.29 Login and signup:

Only admin can use login system.

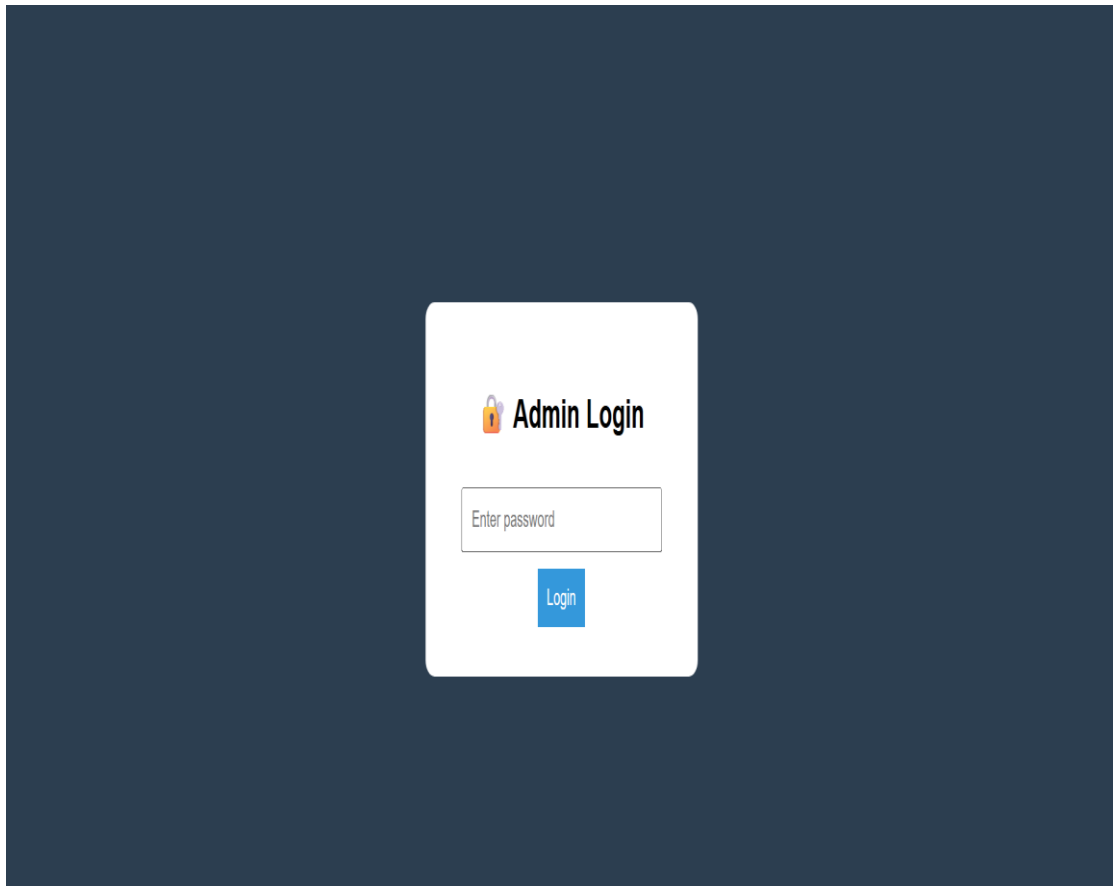


Figure: 3.29.18 (Login Panel)

3.30 Conclusion:

SaveLives BD is an efficient system designed to simplify the process of finding blood donors quickly. By using agile methodology and a structured database system, it ensures scalability, usability, and reliability. The system improves emergency response time and helps save lives through better coordination between donors and users.

CHAPTER 4

IMPLEMENTATION & TESTING

4.1 Introduction:

The SaveLives BD system is developed using modern web technologies that are simple, reliable, and efficient for building a blood donation management platform. The technologies used in this project are HTML, CSS, and JavaScript. These technologies help create a user-friendly, responsive, and interactive web application.

HTML (Hypertext Markup Language):

HTML is used to design and structure the web pages of the system. It creates the basic framework of the application including forms, tables, buttons, dashboards, and navigation menus. HTML ensures that users can easily interact with different features of the system such as registration, login, and donor search.

CSS (Cascading Style Sheets):

CSS is used to improve the appearance and layout of the website. It helps make the system visually attractive, responsive, and easy to use on different devices such as desktops, tablets, and mobile phones. CSS also enhances user experience by applying colors, fonts, spacing, and responsive design techniques.

JavaScript:

JavaScript is used to add interactivity and dynamic functionality to the system. It performs tasks such as form validation, button actions, search filtering, and displaying dynamic content without reloading the webpage. JavaScript helps improve system performance and provides a smooth user experience.

These technologies are lightweight, easy to maintain, and suitable for developing a web-based blood donation management system.

4.2 Implementation Overview:

The implementation phase focuses on converting the system design into a fully functional application. The SaveLives BD system is implemented in different modules to ensure proper organization and smooth operation of the platform. Each module performs specific tasks to maintain system efficiency and usability.

User Registration Module:

The registration module allows new users and blood donors to create accounts by providing personal information such as name, blood group, location, contact number, and password. Proper form validation is implemented to prevent invalid or incomplete data entry.

Login Module:

The login module authenticates users before they can access the system. Registered users can securely log into the platform using their username and password. Error messages are displayed for incorrect login credentials to improve security and usability.

Search Module:

The search module is one of the most important features of the system. It allows users to search for blood donors based on blood group and location. The system quickly displays matching donor information, helping users find blood during emergencies.

Admin Module:

The admin module is developed to manage the entire system efficiently. The administrator can monitor donor information, manage user accounts, update records, and remove invalid data when necessary.

The system is implemented using simple and efficient programming logic to ensure fast response time, easy maintenance, and better user experience.

4.3 Testing:

Testing is an important part of software development that ensures the system functions correctly and meets the required objectives. Several testing methods were performed to identify and remove errors from the SaveLives BD system.

1. Login Testing:

Login testing was performed to verify the authentication process of the system.

The following checks were completed:

- ✓ Verified login with correct username and password.
- ✓ Tested invalid login credentials.
- ✓ Ensured proper error messages are displayed.
- ✓ Checked system security during authentication.

The results showed that the login system successfully authenticates valid users and prevents unauthorized access.

2. Search Testing:

Search testing was conducted to evaluate the donor searching functionality.

The following activities were performed:

- ✓ Tested donor search using different blood groups.
- ✓ Verified location-based filtering.
- ✓ Checked search accuracy and response time.
- ✓ Ensured correct donor information is displayed.

The system successfully provided fast and accurate search results based on user requirements.

4.4 UI Testing:

UI (User Interface) testing was performed to ensure that the system interface is user-friendly, responsive, and visually consistent across different devices and browsers.

The following aspects were tested:

- ✓ Responsiveness on mobile, tablet, and desktop screens
- ✓ Proper alignment of buttons, forms, and navigation menus
- ✓ Font readability and color consistency
- ✓ Smooth navigation between pages
- ✓ User-friendly interaction design

The UI testing results confirmed that the SaveLives BD system provides a clean and responsive interface that improves user experience.

UI Testing Diagram:

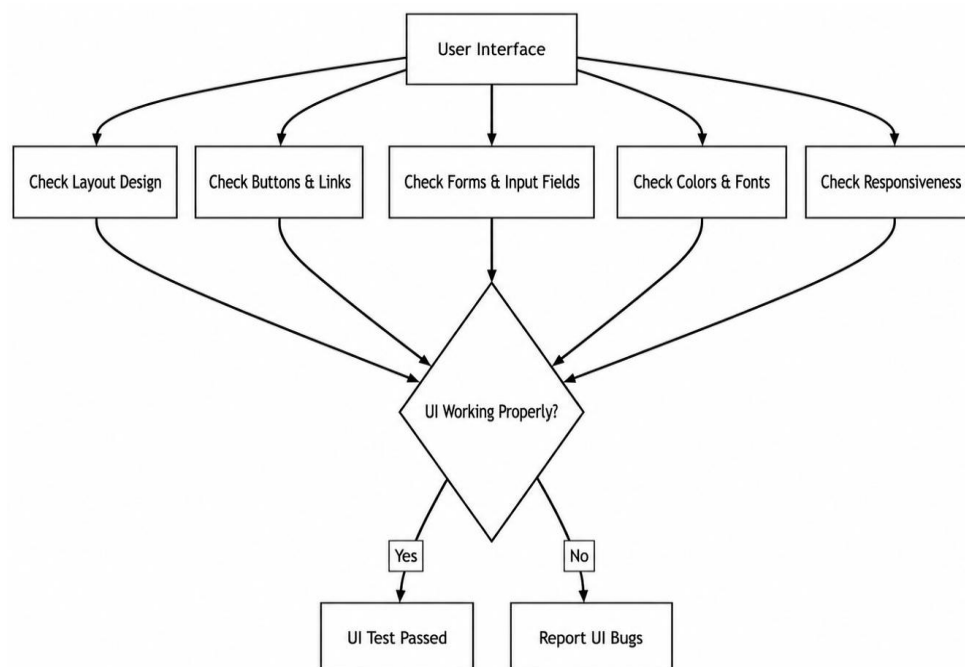


Figure: 4.4.1 (UI Testing)

4.5 Functional Testing:

Functional testing was conducted to verify whether all modules of the system work according to the specified requirements.

The following functionalities were tested:

- ✓ User registration process.
- ✓ Login and logout system.
- ✓ Donor search functionality.
- ✓ Admin panel operations.
- ✓ Data flow between different modules.

All modules operated successfully without major errors. The testing ensured smooth communication between system components and verified that the system performs all intended operations correctly.

Functional Testing Diagram:

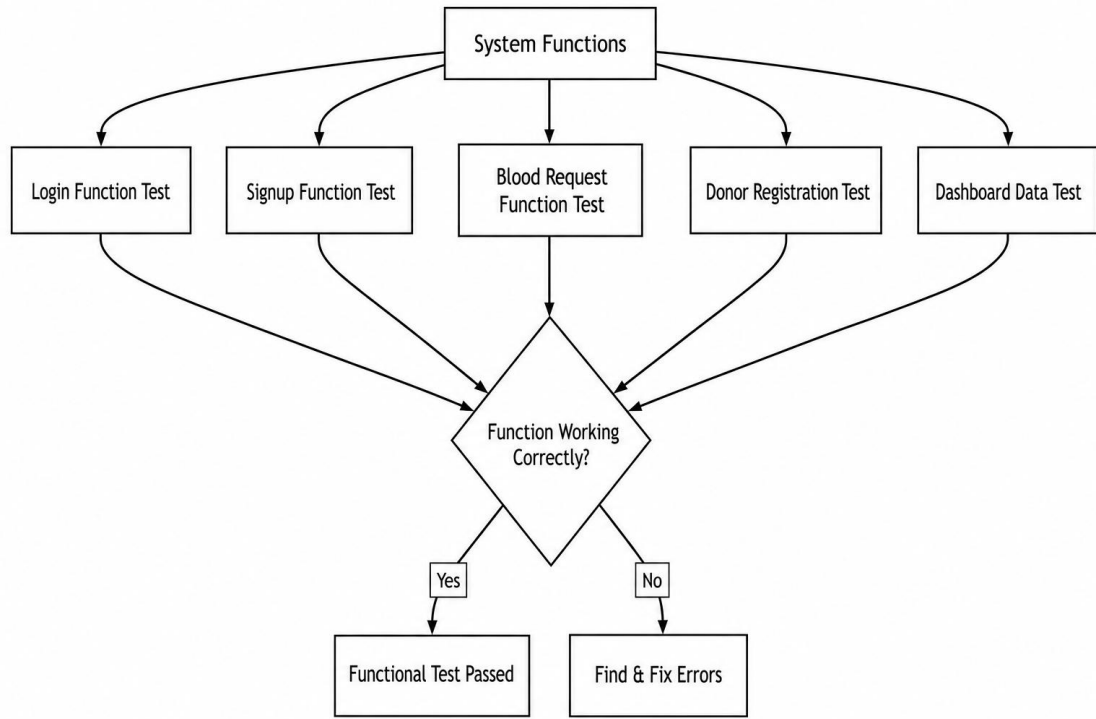


Figure: 4.5.2 (Functional Testing)

4.6 Technology used:

- ✓ Easy to develop and maintain
- ✓ Fast loading performance
- ✓ Responsive and user-friendly design
- ✓ Suitable for web-based applications
- ✓ Supports interactive functionality

The selected technologies make the system reliable and efficient for handling blood donation management operations.

Outline



เขียนเว็บติดต่อฐานข้อมูล

HTML, CSS, PHP, MySQL, Database

2

Earn S. (ENS)

ComSci, KMUTNB

Figure: 4.6.3 (Technology Used)

4.7 Result:

After successful implementation and testing, the SaveLives BD system demonstrated reliable performance and efficient functionality. The system successfully fulfills the primary objectives of connecting blood donors with patients quickly and effectively.

Achievements of the System:

- ✓ Connects donors and users efficiently.
- ✓ Provides fast and accurate donor search results.
- ✓ Maintains a responsive and simple user interface.
- ✓ Handles user and admin operations smoothly.
- ✓ Reduces the time required to find blood donors during emergencies.

The testing process confirmed that the system works correctly with minimal errors and provides a positive user experience. The platform is reliable for basic blood donation management and can be further improved with additional advanced features in the future.

4.8 Conclusion:

SaveLives BD is an effective and user-friendly blood donation management system designed to simplify the process of finding blood donors during emergencies. The system uses agile methodology and a structured implementation process to ensure flexibility, scalability, and reliability.

By integrating donor registration, secure login, donor searching, and admin management features, the system improves communication and coordination between donors and users. The responsive design and efficient search functionality help reduce emergency response time and support life-saving activities.

Overall, SaveLives BD successfully meets the project objectives and demonstrates how web technologies can be used to develop a practical and efficient healthcare support platform..

CHAPTER 5

LIMITATION & Future Work

5.1 Limitation:

The SaveLives BD system is developed to help users find blood donors quickly and efficiently. It reduces the time needed to locate suitable donors and improves communication between donors and users. The system provides a simple, user-friendly platform that ensures better coordination in emergency situations.

5.2 Future Work:

In the future, the system can be further improved by adding advanced features such as:

- ✓ Mobile application development for easier access.
- ✓ GPS integration to find nearby donors in real time.
- ✓ SMS notification system for emergency alerts.
- ✓ Live blood availability tracking.
- ✓ AI-based donor matching system.

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