

Developing a Website of Blood Donation & Transfusion

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A project report submitted in partial fulfillment of the requirements for the degree
of Bachelor of Science in
Computer Science and Engineering

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DECLARATION

This project report is submitted to the Computer Science and Engineering, University of Liberal Arts Bangladesh in partial fulfillment of the requirements for the degree of Bachelor of Science. So, I hereby, declare that this project report is based on the idea by me. Materials of work found by other researchers are mentioned by reference. This project report, neither in whole, nor in part, has been previously submitted for any degree.

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CERTIFICATE OF APPROVAL

The project report entitled “Developing a website of blood donation and transfusion” is submitted to the **Department of Computer Science and Engineering**, University of Liberal Arts Bangladesh, Dhaka in partial fulfillment of the requirements for the degree of Bachelor of Science.

Dated: 14th June 2022

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Signature & Date

DEDICATION

To my stunning guardians, who gave me perpetual love, trust, consistent consolation throughout the long term, and for their petitions.

To my tutors and companions for their understanding, backing, love, and for persevering through the high points and low points during the finish of this proposition.

This report is dedicated to them.

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to my project supervisor, **Mohammed Ashikur Rahman, Ph.D**, for giving me the opportunity to work along him in this project. I am highly indebted to him for his guidance and constant supervision as well as for providing necessary information regarding the project.

The Department of Computer Science & Engineering also remains as one of the key players as it has provided me with the opportunity to nurture my skills and develop myself. It goes without saying that the invaluable support I have received from the entire faculty and staff members of the department has immensely affected my undergraduate study course in the best way possible.

I would like to thank my family members for their kind cooperation and encouragement throughout the course of this project and also during the last 4 years of my undergraduate study. Without their love and care I would not have been able to complete this endeavor and for this I am extremely grateful to my parents.

Monika Akther

University Of Liberal Arts Bangladesh

Date: 14th June, 2022

ABSTRACT

Blood donation is one of the most immovable commitments someone can make. It could be a phenomenal benefit that a person may be able to offer to you. The donation of blood is life's savior. Numerous applications don't have a smooth design and don't have a well-organized look and planning framework. So, my objective is to unravel all of these issues and make the application a user-friendly and centralized app where blood benefactors and searchers can effectively communicate with each other. Now and then we require blood at interims, like each month or two months after, so my objective is to form a plan to book a giver after the break without any pressure. The client can overhaul their profile with a blood donation qualification test, where they can know whether they are qualified or not to give blood. Clients, givers, and collectors can also chat with each other and with the admin. So they can effortlessly discover blood anyplace in Bangladesh and spare their time and lives.

Key Words: Blood Donation Web Application, BD Blood Donation, Blood Transfusion

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Chapter 1: Introduction

1.1 Introduction

When a benefactor conveys blood to a blood bank or healing center for an obscure beneficiary, this is often alluded to as a donation. Blood donation is one of the most steadfast commitments someone can make. It is a fantastic service that an individual may give to society. Each time somebody within the therapeutic industry requires blood to spare someone's life. In advance, all blood banks accept blood from assorted benefactors, keep up-to-date blood group databases, and give vital blood to clinics in a crisis. Be that as it may, blood assets are few, making it difficult to spare the lives of others in an urgent situation (Chetan Masram, 2021).

1.2 Motivation

According to the "Daily Star," 88 million units of blood are collected around the world each year. The sum is sufficient to fill 32 current Olympic swimming pools but not for the world's 7 billion individuals, who require 150 million units of blood each year (Amin, 2012). With 140 million people, Bangladesh is one of the world's most populous countries. Here, a blood seeker can arrange for one blood bag within 19 to 24 hours. The patient blood need table is given below from the perspective of Bangladesh.

Blood needed for	Percentage
Delivery cases	76%
Surgery	55%
Kidney diseases	33%
Thalassemia	37%

Anemia	41%
--------	-----

Table 1: Patient Blood Need

The searchers also say they get blood from families (77%), blood gift bunches (33%), and blood banks (26%). Around 26% of benefactors say they had to travel more than 6 kilometers to give blood. They too spend more than 100 takas (12%) for this reason. Givers stand up to an assortment of challenges sometime recently and amid blood gift, counting transportation issues (38%), managing a crisis (32%), an untrained workforce (29%), health-related issues (15%), and a long cross-checking method (35 percent). A vast number of individuals are willing to give blood. In any case, they are incapable of contributing owing to a need for communication with blood givers. So, to solve this situation and from my personal experience and self-satisfaction of doing something for others, I decided to make an updated web application for blood donation and transfusion with some existing applications (M.Islam, 2009).

1.3 Rationale of the Study

Many applications do not have a smooth design and do not have a well-organized search system and scheduling text system. So, my goal is to solve these problems and make the application a user-friendly and centralized app where blood donors and seekers can easily communicate with each other. Sometimes we need blood at intervals, like every month or two months after, so my goal is to make a scheduled text to book a donor after the break without any tension. A user can update their profile with a blood donation eligibility test, where they can know if they are eligible or not to donate blood. Users, donors, and receivers can also chat with each other and with the admin. So they can easily find blood anywhere in Bangladesh and save their time and lives. Blood donation is life savior curriculum.

1.4 Research Questions

How to develop a new website by updating an existing one with multiple features?

1.5 Expected Output

The program is straightforward to utilize and accessible to everybody at no cost. The essential concept behind this extension was to coordinate the blood donation method with blood benefactors and any potential giver records that arrive on their course to the goal. They, too, explore their areas and show the anticipated comes about with an organized profile and chatting framework, where they can also communicate with arranged content settings. It may be a centralized donor and beneficiary application. The program highlights an engaging design plan. The objective is to overcome all of the deficiencies of earlier apps and create a quick and precise come about.

1.6 Project Management

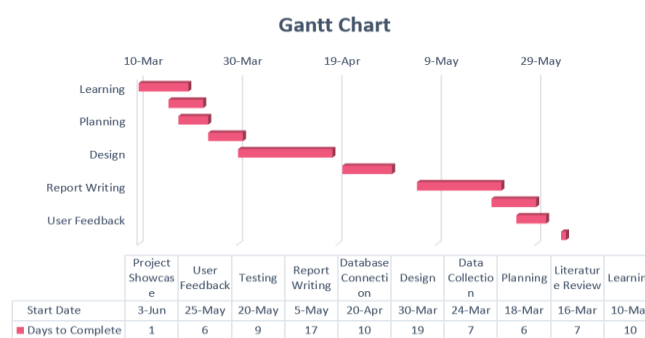


Figure 1: Gantt chart.

When I chose to work on making this venture, I began learning more about PHP so that I may utilize raw PHP. It took me ten days from March 10th to create it, and in some cases, I had to go to numerous sorts of websites to create it, and I got it in many terms. I looked for a few things online and found the impediments to the existing app. At that point, I began arranging this venture by starting by drawing wire draws. I require all the data about my blood and what I have to use to create this site. After all this, I began actualizing this on March 30th. Separated

from implementation, I started composing reports on May 5th. I started this venture on June 3rd. I have checked my app and shared the internet interface with my companion to induce an audit.

1.7 Report Layout

The extended format of this paper is given underneath:

Chapter 2: Here I am progressing to present why I am choosing this venture and why I need to create this project and a few comparable work that as of now exists, together with what will be the effect on our nation additionally what will be leading for our country.

Chapter 3: In this segment, I am getting into a conversation about why this app is truly required for our nation, what individuals need from this app, and what the requirements of this app are for people.

Chapter 4: Here I am attending to making the entire design of this app conjointly appear with the design of the information stream of this framework.

Chapter 5: Here I am attending to the extended usage and illustrating how they work.

Chapter 6: Here I will expand on this app's moral requests, natural impacts, and supportability.

Chapter 7: In this chapter, I am reaching to conclude my entirety of venture works and I am attending to clarify a few future plans for this extent.

Chapter 2: Background

2.1 Related Works

There are several web research and web applications related to blood donation. Below are some of the topmost web applications in Bangladesh about blood donation.

2.1.1 Research Papers:

- In this “**An Extended Research on the Blood Donor Community as a Mobile Application**” paper, they propose a versatile phone application by which anybody will be able to explore for their craved blood gather at the closest area. An expansive number of individuals are as of now utilizing smartphones running on distinctive operating systems. The application will be created in completely different stages, like Android, iOS, or Windows Phone. Whereas it was enlisted, individuals with an eagerness to give blood will be able to get the benefit (A. Bhowmik, 2015).
- In this “**Blood Bank Mobile Application**” paper, they construct a team of individuals who can offer assistance to each other amid a crisis. This application updated the data with respect to the benefactors where the director gets access to the entire data set almost the blood bank administration framework. Benefactors will be incited to enter an individual's points of interest, like name, phone number, and blood type. Within the pressing time of a blood prerequisite, you'll rapidly check for blood banks or healing centers matching specific or related blood groups and reach out to them through the app (International Journal of Scientific Research in Computer Science, Engineering and Information Technology IJSRCSEIT, 2017).

2.1.2 Web Applications:

- **Bangladesh Red Crescent Society**

The Bangladesh Red Crescent Society could be a helpful organization and an assistant to the Bangladesh government. Through President's Arrange No. 26, the Bangladesh Red Crescent Society was established in 1973. In 1988, when the country acknowledged Islam as its sacred religion, it changed its title to Bangladesh Red Crescent Society. Its central station is in Dhaka, and it has 68 branches. Blood donation, tornados, and other characteristic fiascos that happen in different locales of Bangladesh have played a crucial part in alleviation and recuperation (BDRCS, 2021).

The screenshot displays the Bangladesh Red Crescent Society (BDRCS) website. The header includes the BDRCS logo, navigation links (Home, Who We Are, What We Do, Get Involved, Media & Publication, Contact Us), a 'DONATE' button, and a search icon. A banner at the top promotes blood donation with the text: 'Your donation can save the lives of many, make a difference or simply make you feel great about your contribution to humanity. Whatever your reason, whatever your motivation we welcome you to learn more about eligibility and benefits of donating blood with a trusted organization like us. Find out more about local blood drives and BDRCS campaigns near you. Donate blood, save lives. Hotline: +8801811458524 (9.00 AM to 5.00 PM)'. Below this, a table lists blood centers for various locations:

For Donation of Blood	
Dhaka	Red Crescent Blood Bank 7/5, Aurangzeb Road, Mohammadpur, Dhaka. Contact No: 02 48121192, 01811 458537
Chattogram	Fatema Begum Red Crescent Blood Center 395 Andenilla, Chattogram Contact No: 031 620926, 01815 850533, 01819 353445
Jashore	Ahad Red Crescent Blood Center Mustafa Mohabbullah Road, Jashore Contact No: 0421 68882, 01718 802794, 01939 109722
Dinajpur	Begum Tayyeba Mojumder Red Crescent Blood Center 1 New Town, Dinajpur Contact No: 0531 61300, 01723 595972, 01717 184839
Sylhet	Mujib Jahan Red Crescent Blood Center Chowdhalla, Sylhet Contact No: 01611 300900, 0821 724098
Natore	Natore Red Crescent Blood Center Hospital Road, Natore Contact No: 01850 124225, 0771 66561
Rajshahi	Rajshahi Red Crescent Blood Center Rajshahi District Road, Rajshahi Contact No: 01865 055075, 01556 333821
Magura	Achia Khatun Memorial Red Crescent Blood Center Jhenidah Road, Stadium Para, Magura Contact No: 01941 989197, 01941 989198, 01680 547365

The footer contains three main sections: 'CONTACT US' with national headquarters details (684 6th, Red Crescent Square, Bara Khepobazar, Dhaka 1217, Tel: (880) (2) 48310168 / 48310189, Email: info@bdracs.org, and links to Terms and Conditions, Privacy Policy, and Refund Policy); 'RESOURCES' with links to News, Report, Tender, Newsletter, Stories, Video Gallery, and Policy and Framework; and 'GET INVOLVED' with links to Donate or Get Blood, Buy Souvenir Item, Careers, Become a Member, Become a Volunteer, Let's Partner, and Request for Training. A 'SUBSCRIBE TO GET INVOLVED' section includes an email address input field and a description of BDRCS's establishment and commitment to the International Federation of Red Cross and Red Crescent Societies (IFRC) and its Fundamental Principles. Two chat widgets for 'Chat with Bangladesh Red Crescent Society' are visible on the right side of the page.

Figure 2: Bangladesh Red Crescent Society (BDRCS, 2021).

- **Quantum Blood Bank**

Quantum Blood Bank is situated in Dhaka. They have several branches. Its central station is in Dhaka. Besides blood donation, they have several features in their web application like the Quran, physical activities, stories, etc (কোয়ান্টাম স্বেচ্ছা রক্তদান কার্যক্রম - দুঃসময়ের জন্যে রক্ত সঞ্চয় করুন | Quantum Voluntary Blood Donation Program - Save blood for future, n.d.).

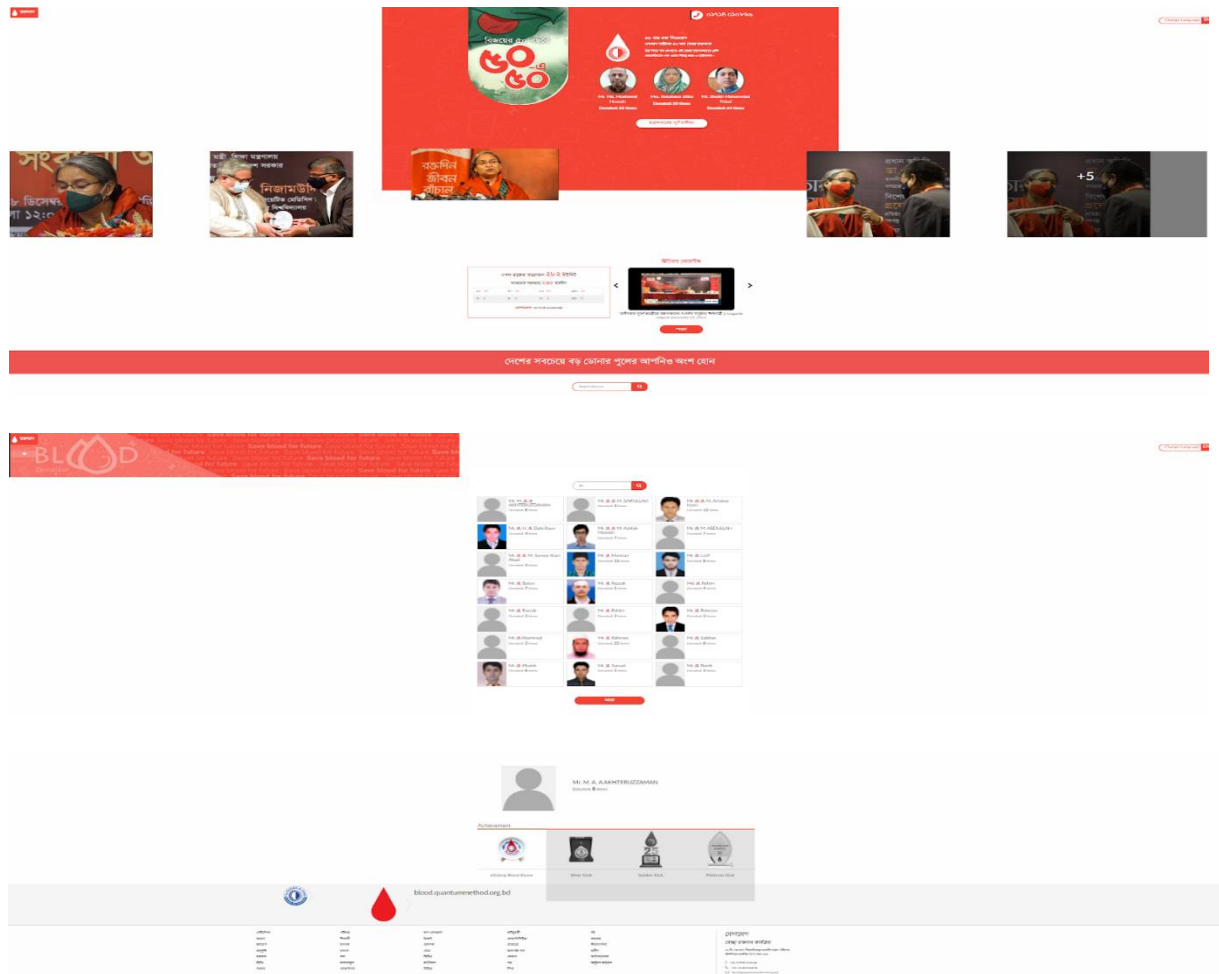


Figure 3: Quantum Blood Bank (কোয়ান্টাম স্বেচ্ছা রক্তদান কার্যক্রম - দুঃসময়ের জন্যে রক্ত সঞ্চয় করুন | Quantum Voluntary Blood Donation Program - Save blood for future, n.d.).

2.2 Comparative Analysis

They are organized, but in their system, users can communicate with donors through the admin and there is no scheduled text system in their application.

2.3 Scope of the Problem

This application will offer a common stage for all clients and will help ensure that the recipient's request for blood is met. The project's scope is to supply customers with various offices in a brief period of time. It offers modern online administration of blood and benefactors. The essential objective of this venture is to bring together all blood benefactors and beneficiaries into a single organization, approve, and protect different information and data on each individual's blood and wellbeing. This framework is utilized to store information on a centralized server that incorporates a database.

2.4 Challenges

In spite of all the instructions, it is hard to complete the project within the given time because I am still a learner. The collection of related data is challenging for this application. For this, I have to organize different kinds of seminars, blood camps, etc. The scheduling texting system is also challenging.

Chapter 3: Research Methodology

3.1 Research Subject

Blood Donation & Transfusion Web Application.

3.2 Proposed Methodology

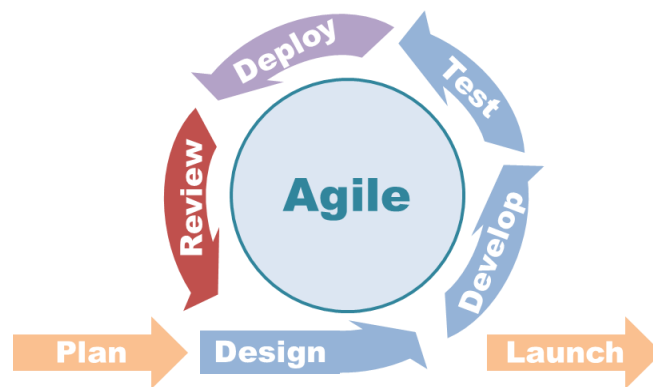


Figure 4: Agile Methodology.

The term "Agile methodology" alludes to a method that empowers nonstop development and testing all through the project's program advancement lifecycle. Unlike the waterfall In this worldview, both improvement and testing operations are contemporaneous under the Agile software testing methodology.

- The first thing that comes to my mind is what kind of data I need. • I had to gather data and analyze the data.
- How am I going to use the data?
- I had to design and start developing.
- I will have to use some testing tools to test this application.
- I need to get feedback from some users who will use the application.

3.2.1 Requirement Analysis:

Existing System	New System
Chat through Admin	You can chat with the admin and with each other (donor and receiver).
No reminder chat.	Scheduled chat

Table 2: Requirement Analysis.

3.2.2 Design Diagram:

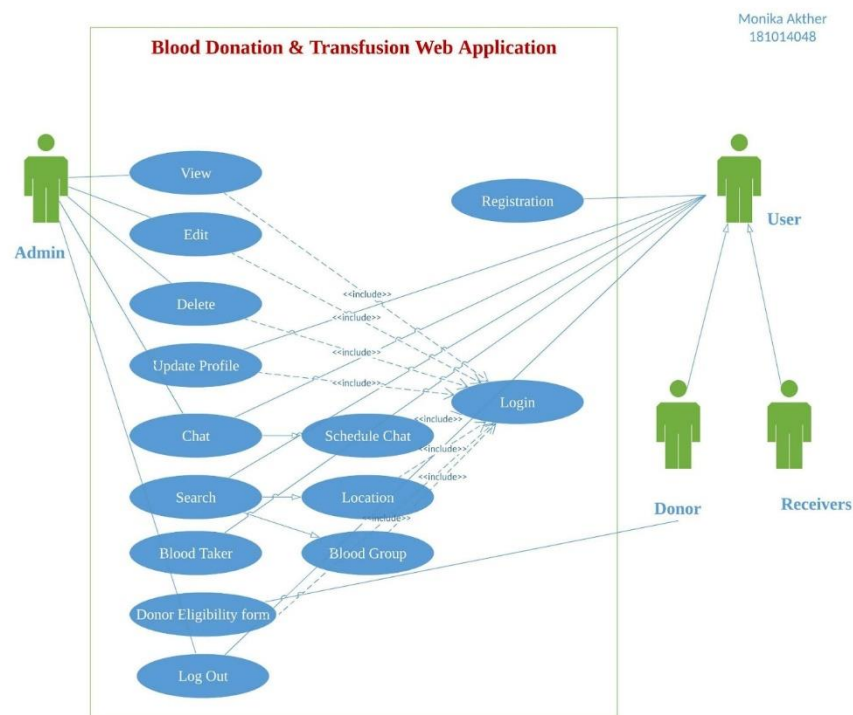


Figure 5: Use Case Diagram

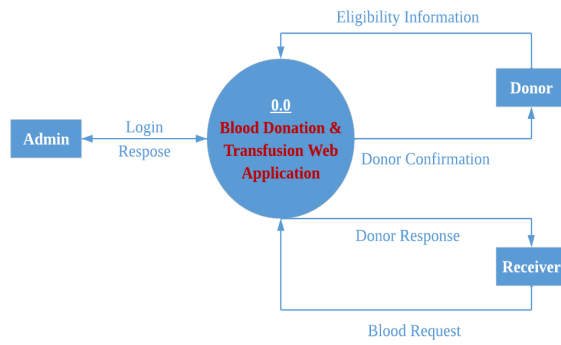


Figure 6: DFD Context Level.

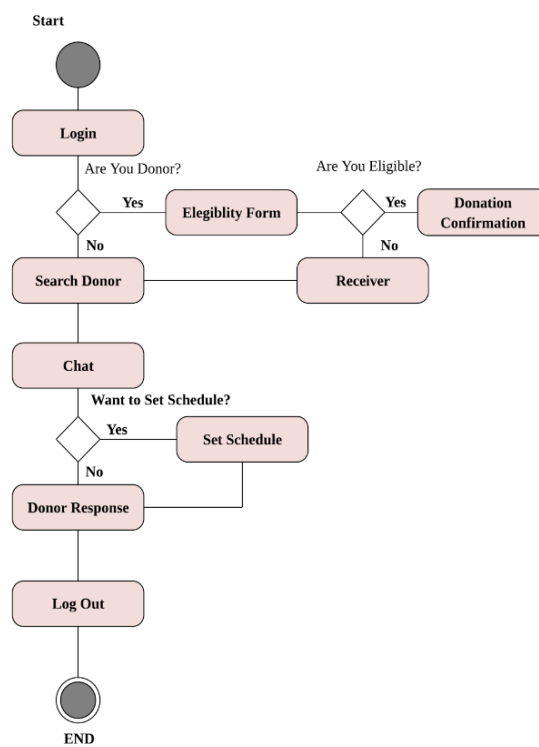


Figure 7: Activity Diagram.

This activity diagram represents the user's site data flow for the project. With this activity diagram, when the user goes to the application, the user can use some features.

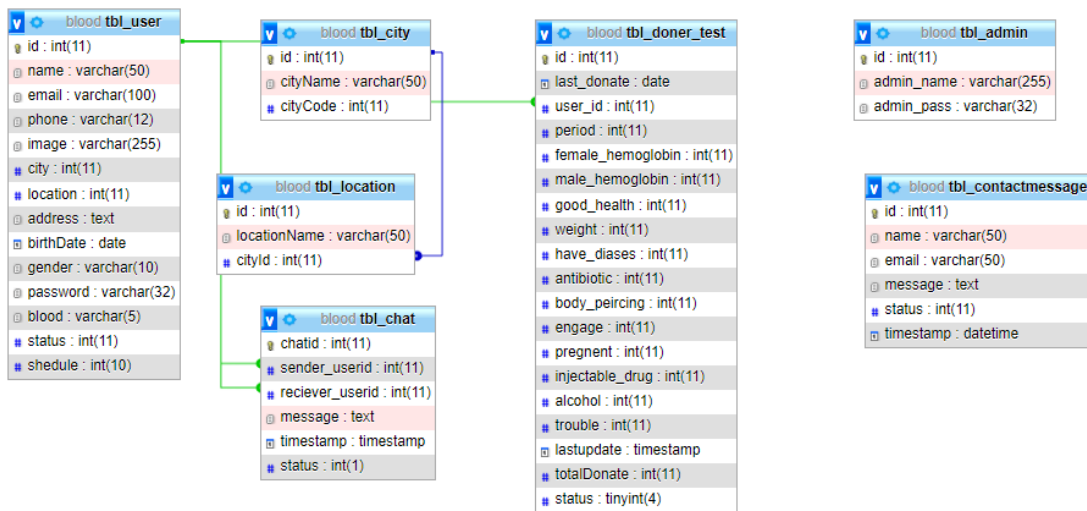


Figure 8: ER Diagram.

3.2.3 Front-end:

- **Languages:** Languages that I used for this project:-

HTML and CSS are not programming languages; they are standards for page structure and styling information (Cox, 2021).

HTML gives the establishment for location structure, which is extended and upgraded by other advances like CSS and JavaScript (Cox, 2021).

CSS is utilized to control the appearance and organization of web pages (Cox, 2021).

JavaScript is utilized to control the behavior of certain components. JavaScript may be a logic-based programming dialect that will be utilized to alter the behavior of site substance in reaction to client exercises. JavaScript is commonly utilized for affirmation boxes, calls-to-action, and the inclusion of modern personalities into existing information (Cox, 2021).

- **Framework:**

The Bootstrap framework permits you to make websites more rapidly and effortlessly. It gives plan formats based on HTML and CSS for typography, buttons, navigation, modals, shapes,

tables, picture carousels, and more. It also permits you to utilize JavaScript plugins (T.Bacinger, 2015).

- **Libraries:**

The JavaScript library "jQuery" allows you to "compose less, accomplish more." The goal of jQuery is to make it much easier to use JavaScript on web pages. JQuery encapsulates a variety of basic tasks that require many lines of JavaScript code into procedures that can be invoked with only one line of code (W3Schools, n.d.).

"Font Awesome" is a well-known icon bundle that gives adaptable vector symbols that can be styled utilizing CSS (S.Bass, 2021).

Google Fonts are used for fonts like Roboto. It is the popular font, which is in Google Fonts.

3.2.4 Back-end:

- **Languages:**

RawPHP is an advanced and strong PHP system that permits individuals with different PHP foundations to collaborate on the same venture. The advantage is that it is speedier and more adaptable since there are no system library overheads. With broad and unambiguous documentation, there's less duplication of codes. It's transportable. More encryption and security innovations. It is not constrained by the rules or ideas of others. Built-in libraries and assistants you're not dependent on third-party libraries as you are on systems. Mistake administration is straightforward. You have total control over the authorization (A.Rajagopal, 2021).

SQL (Structured Inquiry Language) is a standardized programming dialect that's utilized to oversee social databases and perform different operations on the information in them (P.Loshin, 2022).

3.2.5 Implementation of Design

- Home Page:



Figure 9: Home Page 1.

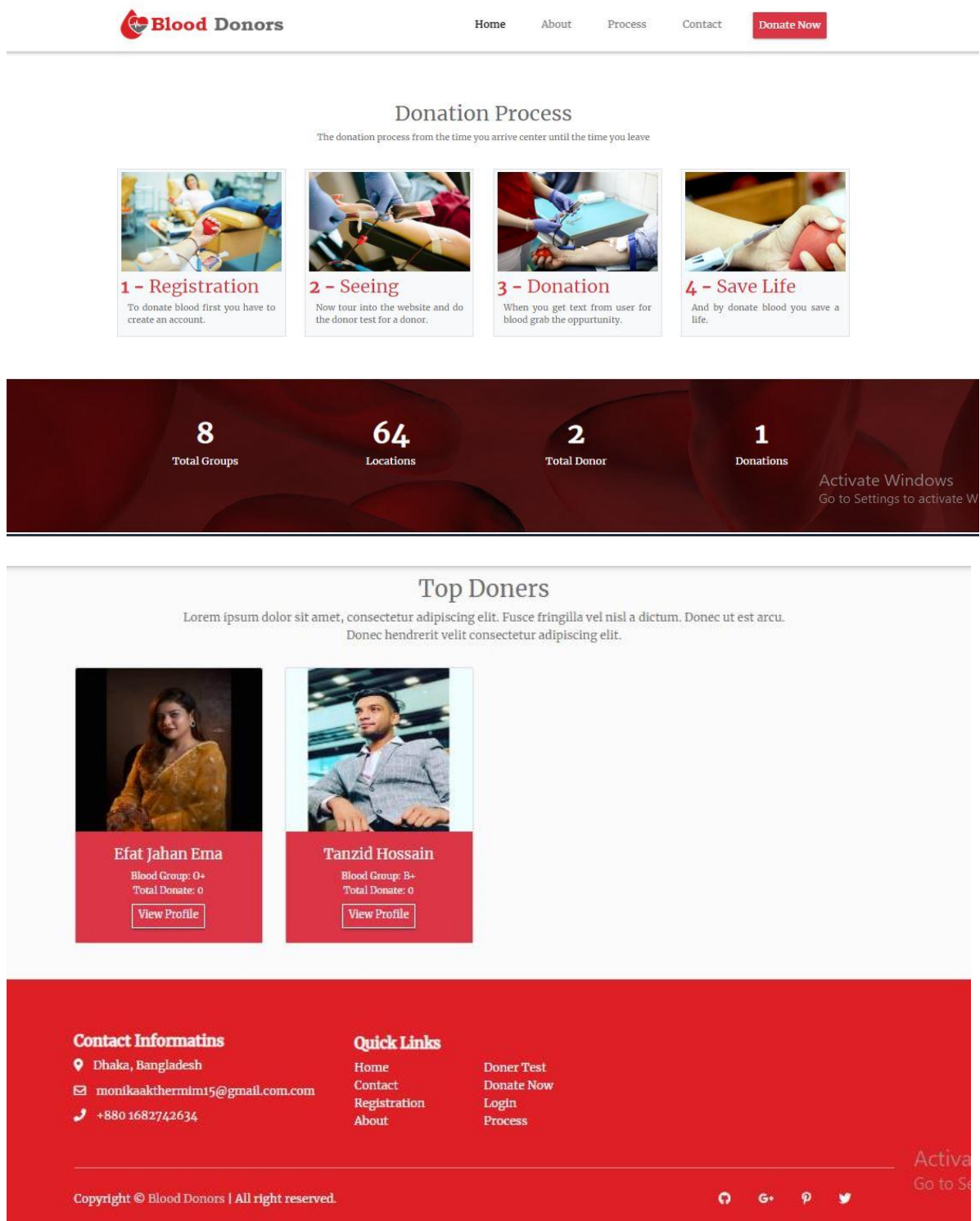


Figure 10: Home Page 2.

- [Login](#)

The screenshot shows the 'Blood Donors' website header with a logo and navigation links: Home, About, Process, Contact, and a red 'Donate Now' button. The main content area features a 'Login Form' with a teal header. The form includes an 'Email' input field, a 'Your password' input field, a 'Forgot Password?' link, a teal 'Submit' button, and a link for 'Not a member? Sign Up now'. A red footer bar contains 'Contact Informatins' (with a location pin for Dhaka, Bangladesh), 'Quick Links' (Home, Contact, Doner Test, Donate Now), and a 'Donate Now' button.

Figure 11: Login Page.

- [Registration](#)

The screenshot shows the 'Blood Donors' website header with a logo and navigation links: Home, About, Process, Contact, and a red 'Donate Now' button. The main content area features a 'Registration Form' with a teal header. The form is titled 'Personal Information' and includes fields for Name (Full Name), Email (Enter Email), Phone (Enter Phone), City (Select City), Location (dropdown), Address (Enter Address), Date of Birth (mm/dd/yyyy with a calendar icon), Gender (Select Donor Type), Password (Enter Password), Confirm Password (Enter Confrim Password), and Blood Group (Select your blood group). A teal 'Submit' button is at the bottom, followed by a link for 'Already Have an Account? Login now'.

Figure 12: Registration Page.

help@xxxx.com | +8801682742634

Login

Registration

Blood Donors

HomeAboutProcessContactDonate Now

Search Donor

Home → Search Donors

Blood Group

A+ ▾

City

Dhaka ▾

Location

Select location ▾

Donor Type

Female ▾

Date

05/24/2022 📅

Search

Search Results:

Name:

Rain Ayesha

Group:

A+

Location:

Dhaka

Send All

Send Message

View Profile

Name:

Jahan Subarna

Group:

A+

Location:

Dhaka

Send Message

View Profile

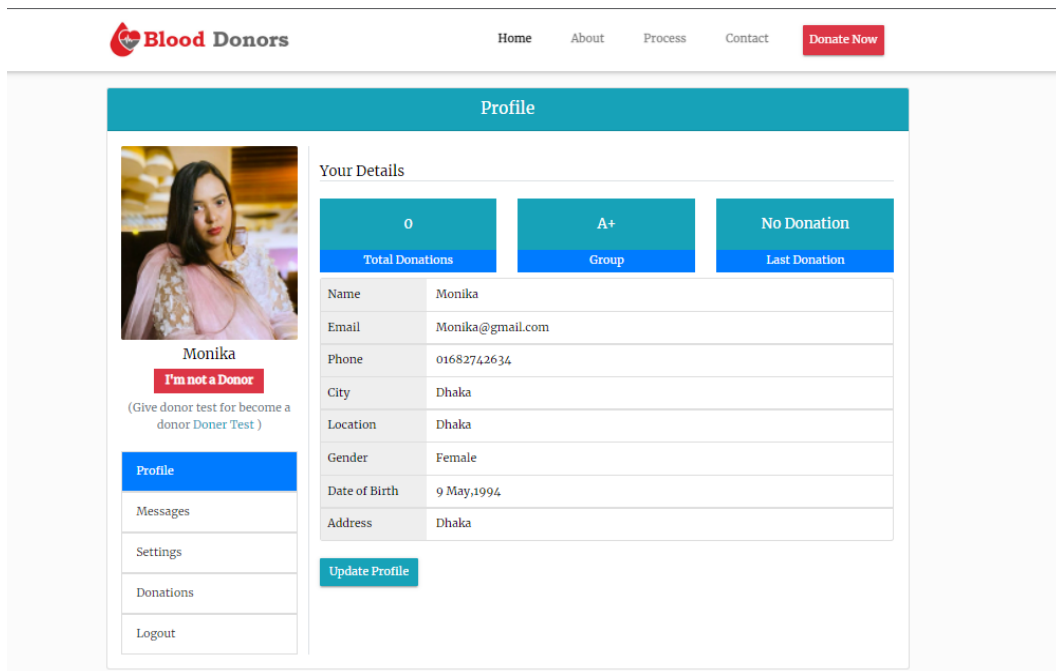
Previous

1

Next

The screenshot shows the 'Blood Donors' website. At the top, there is a navigation bar with links: Home, About, Process, Contact, and a prominent 'Donate Now' button. Below the navigation bar is a search form with fields for 'Blood Group' (set to A+), 'City' (set to Dhaka), 'Location', 'Donor Type', and 'Date' (set to 24/2022). A 'Search' button is to the right of these fields. Below the search form, the 'Search Results:' section displays two donor entries. The first entry is for 'Rain Ayesha' with blood group 'A+'. The second entry is for 'Jahan Subarna' with blood group 'A+'. Each entry has a 'Send Message' button and a 'View Profile' button. A modal error message is centered on the screen, featuring a red 'X' icon and the text 'Message Not Send! You can't send message without login!'. An 'Ok' button is at the bottom right of the modal.

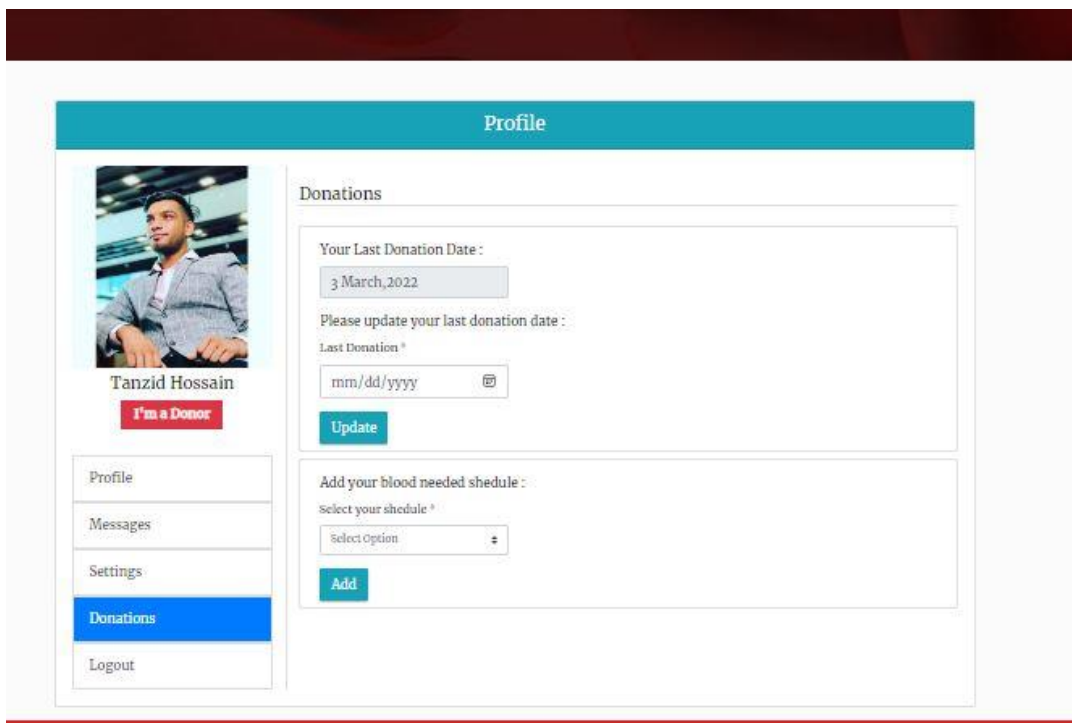
- User



The screenshot shows the 'Blood Donors' website header with navigation links: Home, About, Process, Contact, and a red 'Donate Now' button. The main content area is titled 'Profile' and features a user profile for 'Monika'. On the left, there is a profile picture of a woman, her name 'Monika', a red button 'I'm not a Donor', and a note '(Give donor test for become a donor Doner Test)'. Below this is a sidebar menu with 'Profile' (highlighted), Messages, Settings, Donations, and Logout. The main profile section, titled 'Your Details', contains three summary cards: '0 Total Donations', 'A+ Group', and 'No Donation Last Donation'. Below these is a table of personal details: Name (Monika), Email (Monika@gmail.com), Phone (01682742634), City (Dhaka), Location (Dhaka), Gender (Female), Date of Birth (9 May,1994), and Address (Dhaka). An 'Update Profile' button is at the bottom.

Figure 15: User Profile.

- Donor



The screenshot shows the 'Blood Donors' website header with navigation links: Home, About, Process, Contact, and a red 'Donate Now' button. The main content area is titled 'Profile' and features a user profile for 'Tanzid Hossain'. On the left, there is a profile picture of a man, his name 'Tanzid Hossain', a red button 'I'm a Donor', and a sidebar menu with 'Profile', Messages, Settings, 'Donations' (highlighted), and Logout. The main profile section, titled 'Donations', contains two forms. The first form, 'Your Last Donation Date', has a text input field with '3 March,2022', a label 'Please update your last donation date :', a label 'Last Donation *', a date input field 'mm/dd/yyyy', and an 'Update' button. The second form, 'Add your blood needed shedule :', has a label 'select your shedule *', a dropdown menu 'Select Option', and an 'Add' button.

Figure 16: Donor Profile.

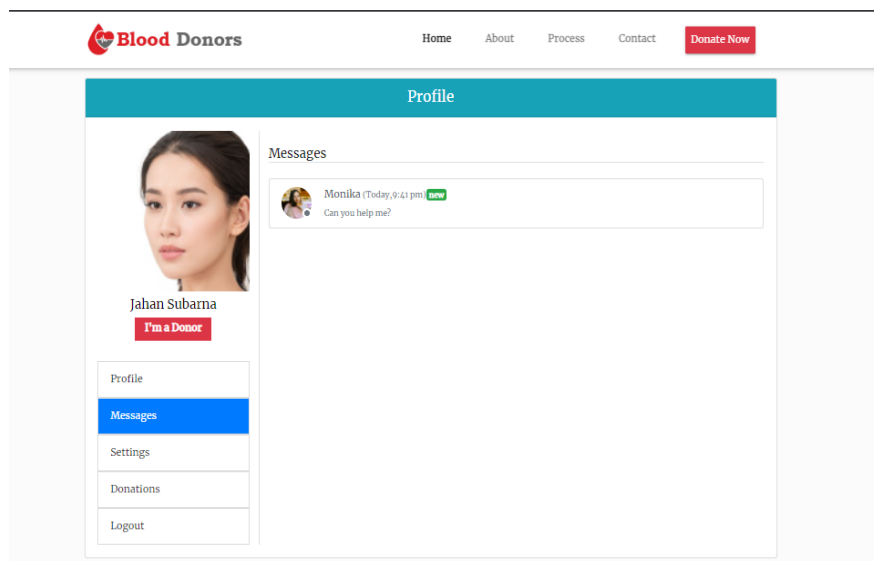


Figure 17: Donor Message.

- Chat

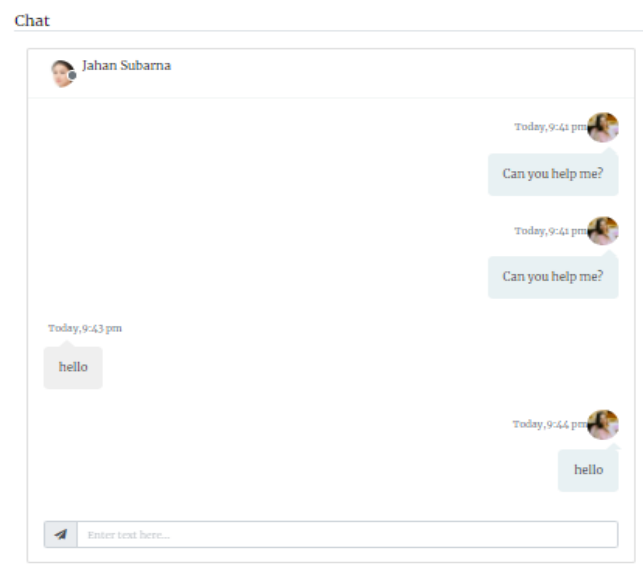


Figure 18: Chat.

- **Admin**

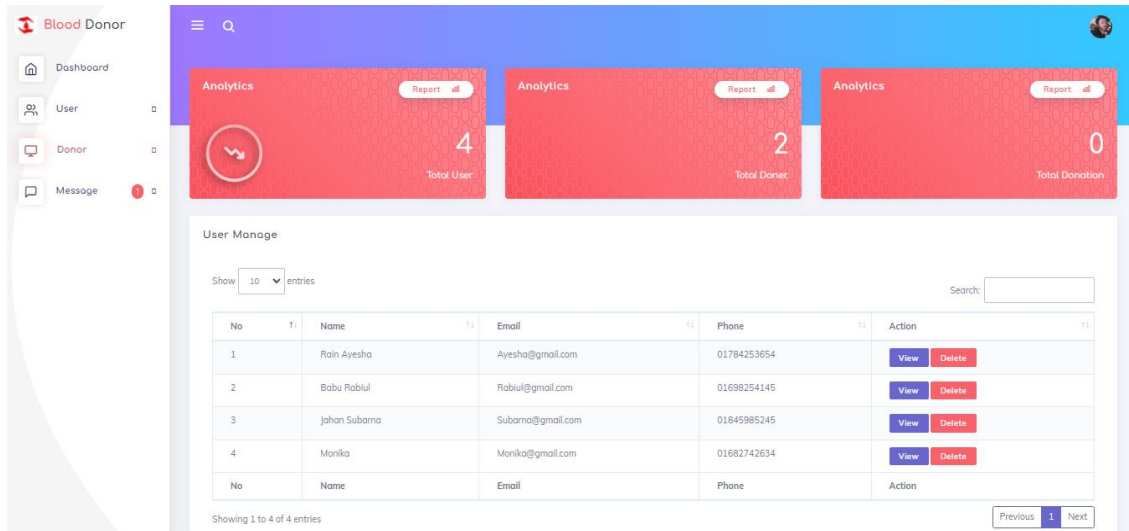


Figure 19: Admin Dashboard.

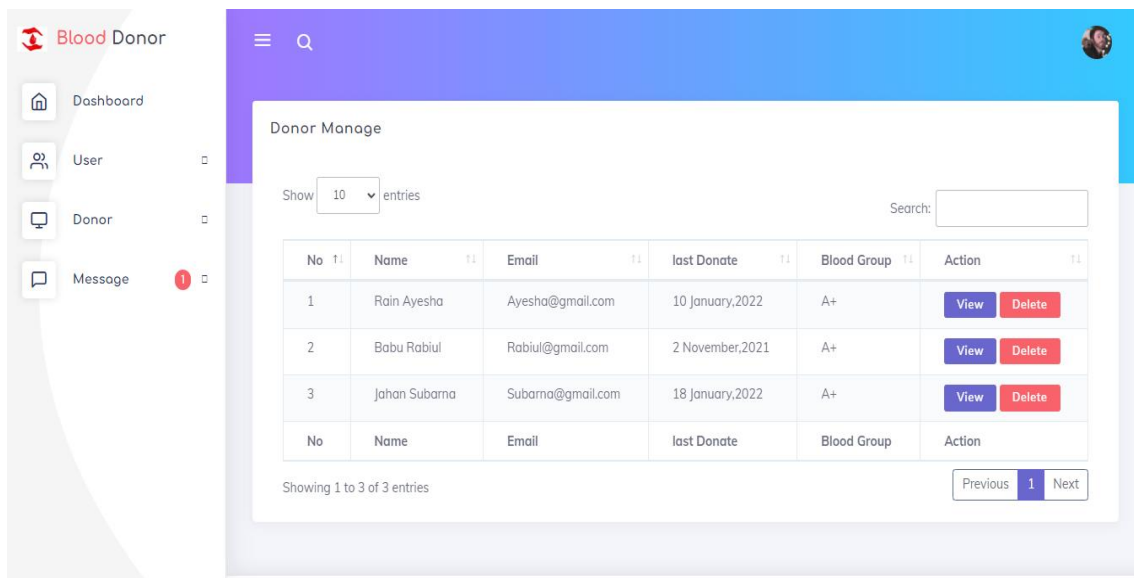


Figure 20: Donor List.

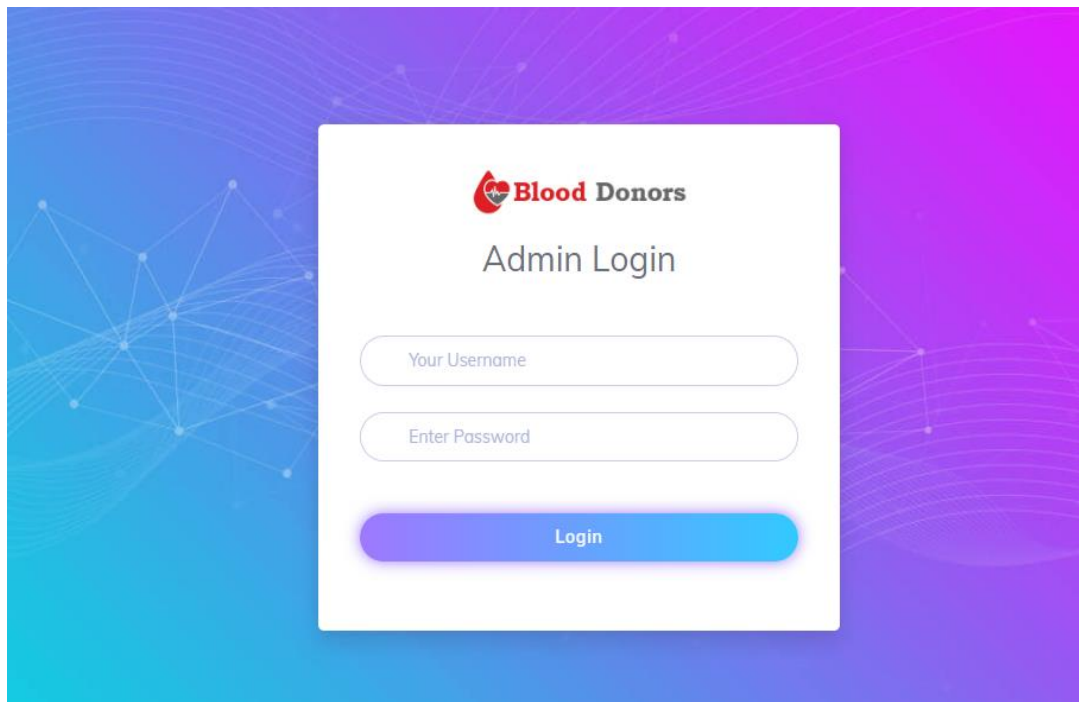


Figure 21: Admin Login.

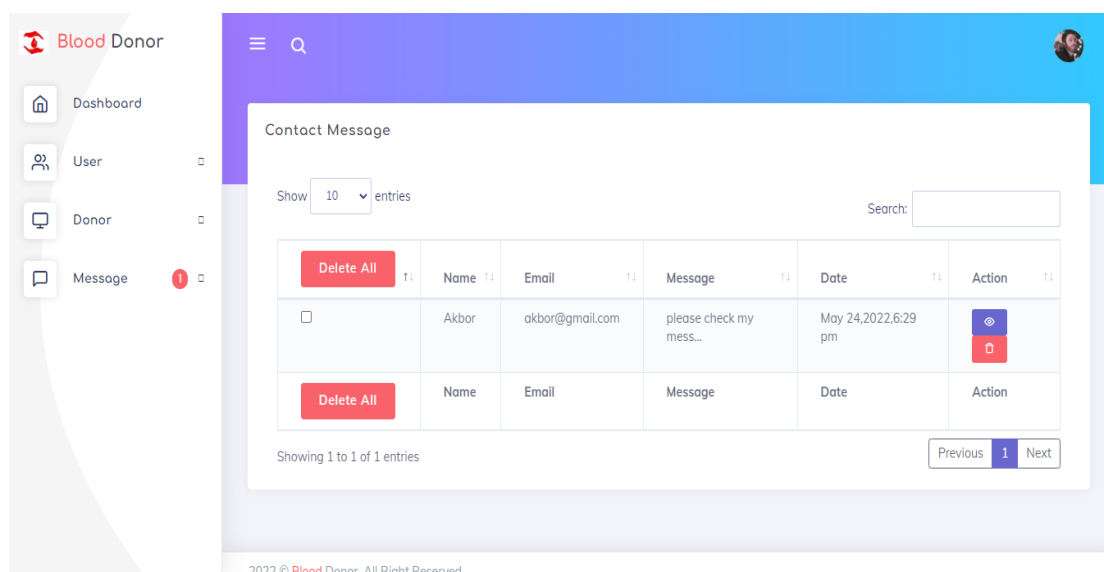


Figure 22: Admin Message.

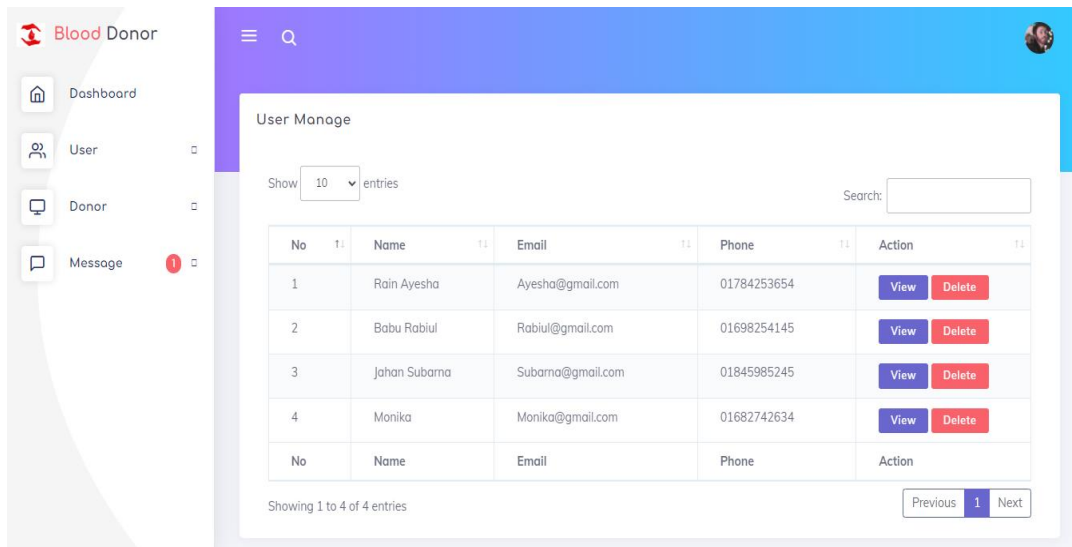


Figure 23: User.

- Contact**

Blood Donors

Home About Process Contact [Donate Now](#)

Contact Form

Tell Us!

Name *

Email *

Your Message *

[Send](#)

Figure 24: Contact Form.

3.3 Implementation Requirements

Below are the implementation requirements to develop:

3.3.1 Software Requirements:

- **Operating System:** Windows 8/10
- **Front End:**
Languages: HTML, CSS, JavaScript.
Framework/Libraries: jQuery, Bootstrap, Font Awesome, Google Fonts.
- **Back End:**
Languages: PHP, SQL
Server: Apache
Database: MySQL
Device: Browsing Web site from any device.

3.3.2 Hardware Requirements:

- **Processor:** Intel Core i5.
- **Processor speed:** 2.70 GHz
- **RAM:** 8 GB

Chapter 4: Experimental Results and Discussion

4.1 Experimental Setup

The taking after testing method for experimental setup in software engineering may be performed depending on web testing necessities.

- **Functionality Experiment**

Functionality Site testing involves various testing characteristics such as user interface, APIs, database testing, security testing, client and server testing, and essential site usefulness. Functional testing is straightforward since it empowers clients to do both manuals and robotized testing. It is arranged to test the functionality of each link included on the website. The Web-based Testing Exercises incorporate the following:

Test links:

All links in your web pages are working accurately and prove, beyond any doubt, that there are no broken links. Ties to be checked will incorporate outgoing links and internal links, anchor links, and MailTo links.

Test Forms: This will guarantee that the scripting checks on the frame are working appropriately. For example, a blunder message is displayed if a client falls flat while filling out a required field in a frame. Verify that the default settings are being used. The information within the shapes is submitted to a live database or associated with a practical e-mail address once submitted. Forms are outlined appropriately for reading.

Test Sessions: Sessions are little records that websites utilize to keep track of current client sessions, so you do not have to log in each time you visit a page. Sessions will comprise testing sessions expelled when the cache is cleared or when they expire. Delete sessions and guarantee that login accreditations are asked the next time you get to the site (T.Hamilton, 2022).

Test HTML and CSS: Checking for syntactic structure Mistakes will be a portion of this. Standard compliance measures such as W3C, Desert Garden, IETF, ISO, ECMA, or WS-I are followed.

Test workflow: This will involve testing your end-to-end workflow scenarios, which can lead the client through various web pages. Test negative strategies as well so that in case a client takes a startling step, a mistake message or offer of assistance is shown in your online application (T.Hamilton, 2022).

- **Usability Experiment**

Ease of use testing is presently a fundamental component of any web-based venture. Analyzers can conduct it like you, or a small center gathers agents of the internet application's target audience. Menus, buttons, or both of the site page's links should be instantly apparent and steady overall. Content ought to be understandable and free of spelling and linguistic botches (T.Hamilton, 2022).

- **Interface Experiment**

Three zones to be tried here are: application, web, and database server.

Application server: Test demands are conveyed effectively to the database, and the yield on the client-side is displayed fittingly. The program must catch any mistakes and report them solely to the director, not the conclusion user.

The Web Server: The test The Web server handles all application demands without refusal of service.

Database Server: Guarantee that questions submitted to the database deliver the desired results (T.Hamilton, 2022).

- **Database Testing**

The database could be a crucial component of your web application, and the engineer must broadly test the database. Testing assignments will include checking for issues when running

queries. Information judgment is preserved when creating, upgrading, or expelling information in a database. Examine inquiry reaction times and fine-tune them as needed. Test information from your database has appeared accurately in your web application (T.Hamilton, 2022).

- **Compatibility Experiment**

Compatibility testing ensures that your web application appears fittingly on various gadgets. Browser testing reveals that the same web page will appear unexpectedly in different browsers. It would help guarantee that your online application is displayed fittingly across all browsers and that JavaScript, AJAX, and confirmation are all working appropriately. You ought to also see Versatile Browser Compatibility. The representation of location components such as buttons, content areas, and changes depends on the working framework. Check that your site works legitimately across various working frameworks, including Windows, Mac, Linux, and browsers such as Firefox, Safari, and Internet Explorer (T.Hamilton, 2022).

- **Performance Experiment**

Performance testing will ensure that your location capabilities are legitimately beneath all conditions. Computer program testing will incorporate, but will not be constrained to, site application reaction times at different association speeds. Load test your web application to see how it handles commonplace and top loads. Stress tries your site to find its breaking point when subjected to it. Higher-than-normal requests amid maximum hours. How does the location recover if a crash happens due to total activity? To minimize stack times, empower optimization methods such as zip compression, browser caching, and server-side cache (T.Hamilton, 2022).

- **Security Experiment**

Testing unauthorized get to secure pages ought not to be permitted. Restricted records ought not to be downloadable without suitable access (T.Hamilton, 2022).

4.2 Experimental Results & Analysis

Experiment	Analyse	Result Pass
Functionality Experiment	Test links	YES
	Test Forms	
	Test Sessions	
	Test HTML and CSS	
	Test workflow	
Usability Experiment	The Site Navigation	YES
	The Content	
Interface Experiment	Application Server	YES
	Web Server	
	Database Server	
Database Experiment	Executing Queries	
	Data Integrity	

	Response Time of Queries	YES
	Data Retrieved	
Compatibility Experiment	Browser Compatibility	YES
Performance Experiment	Connection Speeds Load test Stress Test Optimization Test	YES
Security Experiment	Test for Unauthorized Access Restricted Files (not downloadable) Sessions Killed	YES

Table 3: Experimental Analysis & Results.

4.3 Discussion

1. They can register if they aren't already registered—user Authentication with Email.
After registering, they can edit their profile.

2. Users can input their details like name, gender, blood group, age, location, etc. Their location will be updated in the database.
3. To be a donor, the user has to give the donor test.
4. Users can search for the blood group and location of people and see their details of blood donation.
5. They can contact the person nearest to them by using a chat system.
6. If a blood seeker needs blood every month, they can create a scheduled text for a tension-free collection of blood. After completing the scheduled text at a given interval, the text is generated automatically for the available donors at the location that the user selected after this interval. The user gets a text message from donors on this day. If the user agrees with the donor, they can continue communication with the donor and take blood from them.

Chapter 5: Impact on Society, the Environment, and Sustainability

5.1 Impact on Society

This app is built on the objective of social welfare, so it has an awesome effect on society. This app will not cause any sort of negligence. It could be a stage for blood beneficiaries and benefactors.

5.2 Impact on the Environment

This app is for social welfare. So, it is an environment-friendly app. With this app, a user can easily get help with their life-saving thing: blood. It is not harmful to the environment.

5.3 Ethical Aspects

This app's foremost mission is to guarantee a solid blood supply while also ensuring the well-being of blood donors and collectors. The right and duty to delay unfit donors are based on an epidemiological chance evaluation. It is additionally a commitment to provide convenient counseling services to individuals who have been postponed. Before a blood donation, it ought to set up a secure and excellent atmosphere for blood givers, treat them with regard, and obtain their educated permission. Donors ought to be provided with all the essential data. It'll defend and guarantee the secrecy of any individual information they supply, including their well-being. This framework owes it to blood benefactors to inform them of positive test discoveries and to provide appropriate counseling and referral (World Health Organization, 2021). The procedure may do this through an assortment of test approaches like the below:

If anyone has the following conditions, they are not allowed to donate blood anytime:

1. Have Blood Pressure
2. Have Hepatitis B / Hepatitis C / AIDS or HIV virus or Sexually Transmitted Diseases (STD)
3. Have cancer
4. Have Cardiac disease
5. Have Severe lung disease
6. Have a High-risk occupation (e.g. prostitution)
7. Have Unexplained weight loss of more than 5 kg over 6 months
8. Have Chronic alcoholism
9. Any kind of blood-related disease
10. Other diseases that High risk for your body. (What are the reasons why a person cannot donate blood? | Department of Health website, n.d.)

Requirements before donating blood:

- Last donate date: DD/ MM/ Year (You can donate blood after 4 months of your last donate date)
- For females, do you have now period? (You can donate blood after 7 days of your period ending date).
- If a Female's hemoglobin is less than 12.0 g/dl (If your blood condition More than this level you can donate blood)
- If a Male's hemoglobin is less than 13.0 g/dl (If your blood condition More than this level you can donate blood)
- Must be in good health condition

- Weight at least 50 kg or more
- Have a fever, a cold, flu, sore throat, cold sore, stomach bug, or any infection, Surgery
(Please contact your doctor when he/ she suggests, you can donate blood)
- Taken Antibiotics (You can donate blood after 7 days of last date of your antibiotics)
- Have a Tattoos or body piercing for the past 6 months
- Sex with another person last 3 months or engaged in “at-risk” sexual activity in the past 12 months
- Pregnant (you can donate blood after 3 months of your childbirth until your baby is significantly weaned)
- Taken injectable drugs past 3 months
- Taken Alcohol in the past 3 months
- Having traveled in the past 3 months, or lived in the past three years where mosquito-borne infections are endemic, e.g. malaria, dengue, and Zika virus infections (World Health Organization, 2019).

5.4 Sustainability Plan

Sustainability implies consistency over the long run. It is regularly seen that an app suddenly gets out of date; no one is utilizing that app any longer. These are called unsustainability. Once more, numerous apps are still giving the same benefits as in the beginning. These are called "feasible apps." Since this app is created for the welfare of society, it'll have to be given the same quality of benefit that this app has been able to supply for a long time. Since I will utilize this app for blood donation welfare, it can serve as long as there's a requirement for blood.

Chapter 6: Summary, Conclusion, Recommendation, and Implications for Future Research.

6.1 Summary of the Study

The site serves as an exceedingly organized means of contact between blood benefactors and collectors. In the end, its administration framework may be a streamlined arrangement of the issues within the current bloodstream preparation that tries to evacuate the obstacles in the way of having a smooth bloodstream.

6.2 Conclusions

The fundamental reason that most comforts are essentially and expeditiously accessible in all viewpoints of life is innovative progression. Additionally, our proposed strategy could be a remarkable breakthrough in blood administration that boosts effectiveness in blood collection and acquisition. Robotizing the blood administration handle permits a higher and quicker response in emergency circumstances. A competent administrative framework that addresses the significant challenges within the important industry would help reestablish the esteem of life, which is presently declining and corrupted due to blood shortages.

6.3 Implications for Further Study

Given the state of computing where everything is moving to cloud innovation, I outlined my framework with the long haul in intellect. It is versatile and promptly transformable into a cloud server that numerous blood banks can tap into and obtain essential information. Be that as it may, within the brief, I am looking towards SMS integration, which can send notices and notices to customers' cell phones.

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