

# **A COMPREHENSIVE BLOOD DONATION WEBSITE**

## **INTERDISCIPLINARY PROJECT**

Submitted in partial fulfillment of the requirements for the award of  
Bachelor of Technology in Information Technology

by

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**DEPARTMENT OF INFORMATION TECHNOLOGY**

**SCHOOL OF COMPUTING**

# **SATHYABAMA**

**INSTITUTE OF SCIENCE AND TECHNOLOGY  
(DEEMED TO BE UNIVERSITY)**

**CATEGORY-1 UNIVERSITY BY UGC**

**Accredited "A++" by NAAC**

**12B Status by UGC |Approved by AICTE**

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**MAY 2024**



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[www.sathyabama.ac.in](http://www.sathyabama.ac.in)

## **DEPARTMENT OF INFORMATION TECHNOLOGY**

### **BONAFIDE CERTIFICATE**

This is to certify that this Project Report is the bonafide work of **BENITA S (41120040)** who carried out the project entitled **A COMPREHENSIVE BLOOD DONATION WEBSITE** under my supervision from January 2024 to May 2024.

Internal Guide

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Submitted for Viva voce Examination held on 08.05.24

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## DECLARATION

I **BENITA S (41120040)** hereby declare that the project report entitled **A COMPREHENSIVE BLOOD DONATION WEBSITE** done by me under the guidance **Mrs.D.RAMALAKSHMI, M.E.,** (Internal) is submitted in partial fulfillment of the requirements for the award of Bachelor of Technology degree in Information Technology.

DATE: 08.05.24

PLACE: CHENNAI

A handwritten signature in black ink, appearing to read 'Benita S', with a long horizontal stroke extending to the right.

SIGNATURE OF THE CANDIDATE

## ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to Board of Management of SATHYABAMA for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

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I wish to express my thanks to all Teaching and Non-teaching staff members of the Department of Information Technology who were helpful in many ways for the completion of the project.

## CERTIFICATE OF COMPLETION



## **ABSTRACT**

The project report delineates the comprehensive development and execution of a cutting-edge blood donation website engineered to enhance the efficiency and efficacy of the blood donation process. The website's architecture is designed to seamlessly integrate advanced functionalities, including user registration, real-time tracking of donor availability, and a robust, secure database infrastructure. These features collectively serve to facilitate smooth communication channels between donors, recipients, and blood banks, thereby optimizing the entire blood donation ecosystem.

One of the pivotal aspects of the website is its incorporation of educational resources, strategically placed to raise awareness about the critical significance of blood donation. By disseminating knowledge about the importance of donating blood and its impact on saving lives, the platform endeavors to ensure a consistent and steady supply of blood, crucial for addressing emergencies and ongoing medical needs.

An intuitive user interface lies at the heart of the website's design, fostering community engagement and encouraging active participation from potential donors. Through seamless navigation and user-friendly features, the website serves as a pivotal tool in bridging the gap between individuals willing to donate blood and those in urgent need of it.

In summary, the blood donation website stands as a testament to technological innovation and humanitarian endeavors, poised to revolutionize the way blood donation is perceived and practiced. Its multifaceted approach, encompassing advanced features, educational resources, and community engagement strategies, positions it as a formidable force in the ongoing battle against blood shortages and medical emergencies.

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## 1. INTRODUCTION

In an era where technology intersects with philanthropy, the creation of a comprehensive blood donation website stands as a pivotal stride towards bridging the gap between blood donors and recipients. This project report delves into the development journey of a robust platform designed to facilitate seamless blood donations through a full-stack development approach. By amalgamating cutting-edge technology with the noble cause of saving lives, this initiative aims to revolutionize the blood donation landscape, fostering a community-driven platform for altruistic contributions.

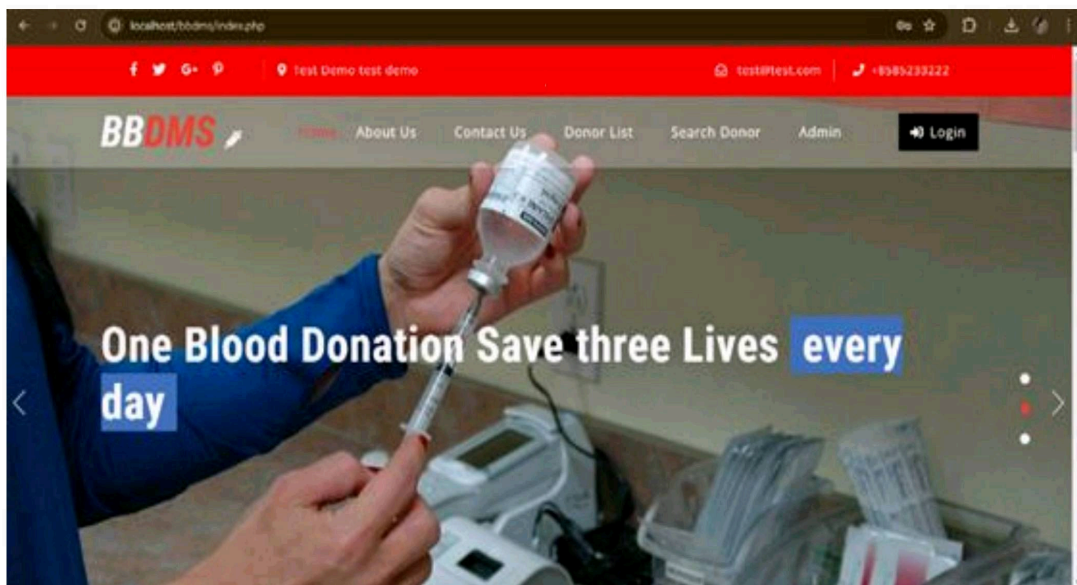
The need for such a platform arises from the persistent challenges faced by blood banks and healthcare facilities in ensuring a steady supply of blood to meet the demands of patients in critical conditions. Despite the critical nature of blood donations, traditional methods of soliciting donors often fall short in efficiently matching supply with demand. This project endeavors to address these shortcomings by leveraging the power of technology to create a centralized hub where donors can register, find donation centers, and contribute to lifesaving endeavors with ease.

At its core, the development of this blood donation website embodies the principles of full-stack development, encompassing both front-end and back-end technologies to deliver a seamless user experience. From intuitive user interfaces designed to simplify donor registration and appointment scheduling to robust back-end systems managing donor databases and inventory tracking, every aspect of the platform is meticulously crafted to optimize efficiency and effectiveness.

Moreover, the website incorporates features to enhance accessibility and inclusivity, catering to diverse user demographics and ensuring that individuals from all walks of life can participate in the noble act of blood donation. Through responsive design and multilingual support, the platform strives to reach a wider audience, transcending geographical and linguistic barriers to foster a global network of blood donors united by a shared commitment to saving lives.

One of the distinguishing features of this project lies in its emphasis on data security and privacy, recognizing the sensitive nature of health-related information. Stringent measures are implemented to safeguard donor data, including encryption protocols, access controls, and compliance with industry standards such as HIPAA (Health Insurance Portability and Accountability Act) where applicable. By prioritizing data integrity and confidentiality, the platform instills trust and confidence among donors, encouraging greater participation and engagement.

In essence, this project represents more than just the creation of a website; it embodies a collaborative effort to harness the potential of technology for social good, leveraging innovation to address pressing challenges in healthcare and humanitarian aid. As this report unfolds, it will delve deeper into the technical intricacies, design considerations, and implementation strategies that underpin the development of this comprehensive blood donation website, shedding light on the transformative potential of technology when wielded in service of humanity.



***Fig:1.1: Blood Donation Website***

## 1.1 PROBLEM STATEMENT

The aim of this study despite advancements in healthcare, blood shortages continue to pose a significant challenge globally, often resulting in adverse consequences for patients in need of transfusions. Traditional methods of blood donation coordination are fraught with inefficiencies, relying on manual processes and fragmented networks. This fragmented approach leads to missed opportunities for donation, inadequate donor engagement, and suboptimal matching of blood supply with demand.

Furthermore, existing blood donation platforms often lack the comprehensive features necessary to address the multifaceted aspects of the donation process. There is a critical need for a centralized, technologically-driven solution that streamlines donor recruitment, appointment scheduling, communication, and data management.

Thus, the problem at hand necessitates the development of a comprehensive blood donation website utilizing full-stack development principles. This platform must address the shortcomings of current approaches by offering a user-friendly interface, robust backend architecture, and seamless integration with healthcare institutions. By tackling these challenges head-on, the project aims to revolutionize the blood donation landscape, ensuring a reliable and sustainable supply of blood to meet the needs of patients worldwide..

## **2. METHODOLOGY**

### **2.1 PROJECT OBJECTIVES**

- 1 Facilitate Donor Registration: Enable individuals to easily register as blood donors through a user-friendly interface, capturing essential information such as blood type, contact details, and donation preferences.
- 2 Optimize Donor Matching: Implement algorithms to efficiently match donor profiles with the specific blood requirements of patients, ensuring timely and accurate blood transfusions.
- 3 Streamline Appointment Scheduling: Provide a seamless process for donors to schedule donation appointments online, taking into account their availability and the operating hours of donation centers.
- 4 Enhance Donor Engagement: Engage donors through personalized communication, reminders, and notifications regarding upcoming donation opportunities, special events, and appreciation gestures.
- 5 Ensure Data Security and Compliance: Establish robust data security measures and compliance protocols to safeguard donor information, adhere to privacy regulations, and maintain trust in the platform.
- 6 Enable Real-time Updates: Offer real-time updates on blood inventory levels, urgent donation needs, and donation center statuses to inform donors and encourage timely contributions.
- 7 Expand Donation Reach: Extend the reach of the platform to encompass diverse donor demographics, geographical regions, and community organizations through targeted outreach and partnerships.
- 8 Promote Education and Awareness: Provide educational resources, FAQs, and interactive content to raise awareness about the importance of blood donation, dispel myths, and encourage regular participation.

## 2.2 REQUIREMENT ANALYSIS

### 2.2.1 HARDWARE REQUIREMENTS

|           |   |                                   |
|-----------|---|-----------------------------------|
| Processor | : | Processor Intel CORE i3 and above |
| RAM       | : | 6 GB                              |
| Mouse     | : | Digital                           |
| Keyboard  | : | 105 Digital Keys                  |

### 2.2.2 SOFTWARE REQUIREMENTS

|                  |   |                                   |
|------------------|---|-----------------------------------|
| Operating System | : | Windows                           |
| Language         | : | HTML, CSS, JAVASCRIPT, FULL STACK |
| Development GUI  | : | Visual Studio (VS CODE).          |
| Database         | : | PHP (XAMPP)                       |

## 2.3 PROPOSED MODEL

### 2.3.1. Overview:

The proposed system is a comprehensive blood donation website aimed at connecting blood donors with recipients in need of specific blood types. The website serves as a centralized platform where individuals can register as blood donors, search for donors based on blood type and location, and schedule blood donation appointments. Additionally, the website includes an admin panel for monitoring activities, managing donor records, and ensuring the smooth operation of the platform.

### 2.3.2. Key Features:

*Donor Registration:* Individuals can sign up as blood donors by providing their personal information, contact details, and blood type.

*Donor Login:* Registered donors can log in to their accounts to update their profiles, view donation history, and manage appointment schedules.

*Blood Group Search:* Recipients can search for blood donors based on specific blood types and location preferences.

*Donor Details Display:* Detailed profiles of registered donors are displayed, including contact information, blood type, availability, and donation history.

*Appointment Scheduling:* Recipients can schedule blood donation appointments with available donors through the website.

*Admin Dashboard:* An administrative dashboard is provided for monitoring website activities, managing donor records, and generating reports.

### **2.3.3. Security Measures:**

*User Authentication:* Donors are required to log in with valid credentials to access their accounts, ensuring secure access to personal information.

*Data Encryption:* Sensitive data such as passwords and personal information are encrypted using secure encryption algorithms to protect against unauthorized access.

*Input Validation:* Input data from users is validated to prevent injection attacks and ensure data integrity.

*Role-Based Access Control:* Different levels of access are implemented, with donors having limited access to their own profiles and admins having full access to manage the website.

### **2.3.4. Deployment and Maintenance:**

The website is deployed to a production server, configured with necessary software and security measures. Regular maintenance tasks include monitoring server performance, updating software components, and addressing any reported issues or bugs. Ongoing support is provided to users and administrators, with updates and enhancements made based on feedback and evolving requirements.

## **2.4 SYSTEM ARCHITECTURE**

The system architecture of the proposed blood donation website encompasses various components working together to deliver the desired functionalities. Here's an explanation of each component:

### **2.4.1. Frontend:**

- 1 The frontend of the website is responsible for presenting the user interface to website visitors.

- 2 It is developed using HTML (Hypertext Markup Language), CSS (Cascading Style Sheets), and JavaScript.
- 3 HTML is used to structure the content of web pages, CSS is used for styling and layout, and JavaScript is used for interactivity and dynamic behaviour.
- 4 The frontend components include web pages for donor registration, login, blood group search, donor profile display, and appointment scheduling.
- 5 User interactions with the frontend trigger requests to the backend server for data processing and retrieval.

#### **2.4.2. Backend:**

- 1 The backend of the website handles the server-side logic and interacts with the database to process user requests.
- 2 It is developed using PHP (Hypertext Preprocessor), a server-side scripting language commonly used for web development.
- 3 PHP scripts receive requests from the frontend, perform necessary computations or data operations, and generate responses to be sent back to the client.
- 4 Backend functionalities include user authentication, donor registration, blood group search, appointment scheduling, and database operations.
- 5 PHP scripts interact with the database management system (DBMS) to retrieve, insert, update, or delete data as needed.

#### **2.4.3. Database:**

- 1 The database stores all relevant data for the blood donation website, including donor information, appointment details, and administrative records.
- 2 MySQL is used as the relational database management system (RDBMS) for storing structured data in tables with defined relationships.
- 3 Database tables are designed to efficiently organize and manage data, with appropriate indexing and normalization to ensure data integrity and optimize performance.
- 4 The database schema includes tables for donors, appointments, user authentication credentials, and administrative data.

- 5 Backend scripts interact with the database using SQL (Structured Query Language) queries to retrieve or manipulate data based on user requests.

#### **2.4.4. Server:**

- 1 The website is hosted on a web server, which handles incoming HTTP requests from clients and serves appropriate responses.
- 2 The web server is responsible for processing PHP scripts, executing database queries, and generating dynamic web pages to be sent back to the client.
- 3 Common web servers used for hosting PHP applications include Apache HTTP Server, Nginx, and Microsoft Internet Information Services (IIS).
- 4 The server environment is configured to support PHP execution, MySQL database connectivity, and other necessary software components.
- 5 Security measures such as firewall configurations, SSL/TLS encryption, and access controls are implemented at the server level to protect against unauthorized access and attacks.

Overall, the system architecture follows a client-server model, with the frontend interacting with the backend server to facilitate user interactions and data processing. The backend communicates with the database to store and retrieve data, while the server environment ensures the smooth operation and security of the website. This architecture provides a scalable and maintainable framework for developing and deploying the blood donation website.

## **2.5 MODULES**

In this project there are three modules. They are

- 1 Admin Module
- 2 User Module
- 3 Registered User Module

### **2.5.1. Admin Module:**

*Dashboard:* In this section, admin can view all the details in brief like total blood group listed, registered donor list, and total enquiries received.

*Blood Group:* In this section, admin can manage blood group (Add / Delete).

*Donor List:* In this section, admin can view a list of donors and have the right to delete and hide the detail of donor.

*Manage Contact us Query:* In this section, admin can manage query which is received by users.

*Manage Pages:* In this section, admin can website pages.

*Update Contact info:* In this section, admin can update the contact details of the website.

*Request Received by Donor:* In this section, admin can view the request of blood that is received by the donor.

Admin can also update his profile, change the password and recover the password.

### **2.5.2 Admin Module Algorithm:**

1 *Admin Login:*

a. Input:

Admin username and password

b. Process:

Verify admin credentials against stored credentials in the database.

If credentials match, grant access to the admin dashboard.

If credentials do not match, display an error message and prompt for re-entry.

c. Output:

Access granted to admin dashboard or error message.

2 *Dashboard Display:*

a. Input:

None

b. Process:

Retrieve data from the database to display statistics such as total blood groups listed, registered donor count, and total enquiries received.

Render the dashboard with the retrieved data for admin viewing.

c. Output:

Dashboard displayed with relevant statistics.

### 3 *Blood Group Management:*

a. Input:

Blood group management actions (Add/Delete)

b. Process:

If the admin selects to add a new blood group, prompt for the blood group name.

If the admin selects to delete a blood group, prompt for the blood group to be deleted.

Execute corresponding database operations to add or delete the blood group.

Display success or error messages based on the outcome of the operation.

c. Output:

Blood group added/deleted successfully or error message displayed.

### 4 *Donor List Management:*

a. Input:

Donor list actions (View/Delete/Hide)

b. Process:

Retrieve the list of donors from the database.

Display the list of donors with options to view details, delete donors, or hide donor details.

If the admin selects to delete a donor, execute the corresponding database operation to remove the donor record.

If the admin selects to hide donor details, update the donor record in the database accordingly.

c. Output:

Donor list displayed with options for management.

#### 5 *Manage Contact Us Queries:*

a. Input:

Contact query management actions (View/Respond/Delete)

b. Process:

Retrieve contact queries from the database.

Display the list of queries with options to view details, respond to queries, or delete queries.

If the admin selects to respond to a query, provide a text field to input the response.

Execute corresponding database operations to update query status or delete queries.

c. Output:

Contact queries displayed with options for management.

#### 6 *Manage Pages:*

a. Input:

Website page management actions (Edit/Delete)

b. Process:

Retrieve website pages from the database.

Display the list of pages with options to edit content or delete pages.

If the admin selects to edit a page, provide a text editor to modify the page content.

Execute corresponding database operations to update page content or delete pages.

c. Output:

Website pages displayed with options for management.

#### *7 Update Contact Info:*

a. Input:

Updated contact information

b. Process:

Display current contact information for the website.

Provide input fields to update contact details such as email address, phone number, and address.

Execute database operations to update the contact information.

c. Output:

Contact information updated successfully.

#### *8 View Requests Received by Donors:*

a. Input:

None

b. Process:

Retrieve requests for blood received by donors from the database.

Display the list of requests with details such as donor name, blood group, and contact information of the recipient.

c. Output:

Requests received by donors displayed for admin viewing.

#### *9 Profile Management:*

a. Input:

Profile management actions (Update/Change Password/Recover Password)

b. Process:

Provide options to update admin profile details, change password, or recover password.

If the admin selects to update profile details, provide input fields to modify information such as name, email, etc.

If the admin selects to change password, prompt for current and new password.

If the admin selects to recover password, prompt for email address and send a password reset link.

c. Output:

Profile details updated, password changed, or password reset link sent.

### **2.5.3. User Module:**

*Home:* Its is welcome page for users and donor. If any users want to donate the blood they must register with us.

*About Us:* Users can view the about us page.

*Contact Us:* Users can contact with admin the through contact us page.

*Donor List:* Users can view and contact donors.

*Search Donor:* Users can search the donor according to city and blood group

### **2.5.4. User Module Algorithm**

1. *Home Page:*

a. Input:

None

b. Process:

Display a welcome message and brief description of the blood donation website

Provide options for users to register as donors if they wish to donate blood.

c. Output:

Home page displayed with registration option.

2. About Us Page:

a. Input:

None

b. Process:

Retrieve content for the About Us page from the database.

Display the About Us page with information about the website's mission, vision, and objectives.

c. Output:

About Us page displayed for user viewing.

3. *Contact Us Page*:

Input:

Contact form submission (Name, Email, Message)

Process:

Provide a form for users to submit their name, email address, and message to contact the admin.

Upon submission, send the contact query to the admin for response.

Display a confirmation message to the user.

Output:

Contact query submitted successfully.

4. *Donor List*:

a. Input:

None

b. Process:

Retrieve the list of registered donors from the database.

Display the list of donors with details such as name, blood group, and contact information.

c. Output:

Donor list displayed for user viewing.

#### *5. Search Donor:*

a. Input:

Search criteria (City, Blood Group)

b. Process:

Provide input fields for users to enter search criteria such as city and blood group.

Retrieve donors matching the search criteria from the database.

Display the list of matching donors with details such as name, blood group, and contact information.

c. Output:

Matching donors displayed based on search criteria.

#### **2.5.5. Register User Module**

*Home:* It is a welcome page for users and donors. If any users want to donate their blood they must register with us.

*About Us:* Users can view the about us page.

*Contact Us:* Users can contact with admin the through contact us page.

*Donor List:* Users can view and contact with donor.

*Search Donor:* Users can search the donor according to city and blood group.

*My Account:* Profile, Change Password, Request Received, Logout

Donor can also update their profile, change their password and recover their password.

#### **2.5.6. Registered User Module Algorithm**

1. Home Page:

a. Input:

None

b. Process:

Display a welcome message and brief description of the blood donation website.

Provide options for users to register as donors if they wish to donate blood.

c. Output: Home page displayed with registration option.

2. About Us Page:

a. Input:

None

b. Process:

Retrieve content for the About Us page from the database.

Display the About Us page with information about the website's mission, vision, and objectives.

c. Output:

About Us page displayed for user viewing.

3. Contact Us Page:

a. Input:

Contact form submission (Name, Email, Message)

b. Process:

Provide a form for users to submit their name, email address, and message to contact the admin.

Upon submission, send the contact query to the admin for response.

Display a confirmation message to the user.

c. Output: Contact query submitted successfully.

4. Donor List:

a. Input:

None

b. Process:

Retrieve the list of registered donors from the database.

Display the list of donors with details such as name, blood group, and contact information.

Provide an option for users to contact donors directly through the website.

c. Output: Donor list displayed for user viewing with contact option.

5. Search Donor:

a. Input:

Search criteria (City, Blood Group)

b. Process:

Provide input fields for users to enter search criteria such as city and blood group.

Retrieve donors matching the search criteria from the database.

Display the list of matching donors with details such as name, blood group, and contact information.

c. Output:

Matching donors displayed based on search criteria.

6. My Account:

a. Input:

User account actions (Profile, Change Password, Request Received, Logout)

b. Process:

Provide navigation options for users to access different sections of their account.

If the user selects Profile, display their profile information and provide an option to update it.

If the user selects Change Password, provide input fields to change their password.

If the user selects Request Received, display a list of requests received for blood donation.

If the user selects Logout, terminate the session and redirect to the home page.

c. Output:

User account actions performed accordingly.

Additionally, for donor-specific functionalities:

7. Profile Update:

a. Input:

Updated donor profile information

b. Process:

Display the donor's profile information with editable fields.

Allow the donor to update their profile details such as contact information and blood type.

c. Output: Donor profile updated successfully.

8. Password Change:

a. Input:

New password

b. Process:

Provide input fields for the donor to enter their current and new password.

Verify the current password and update it with the new password.

c. Output: Password changed successfully.

9. Password Recovery:

a. Input:

Email address for password recovery

b. Process:

Provide a form for the donor to enter their email address.

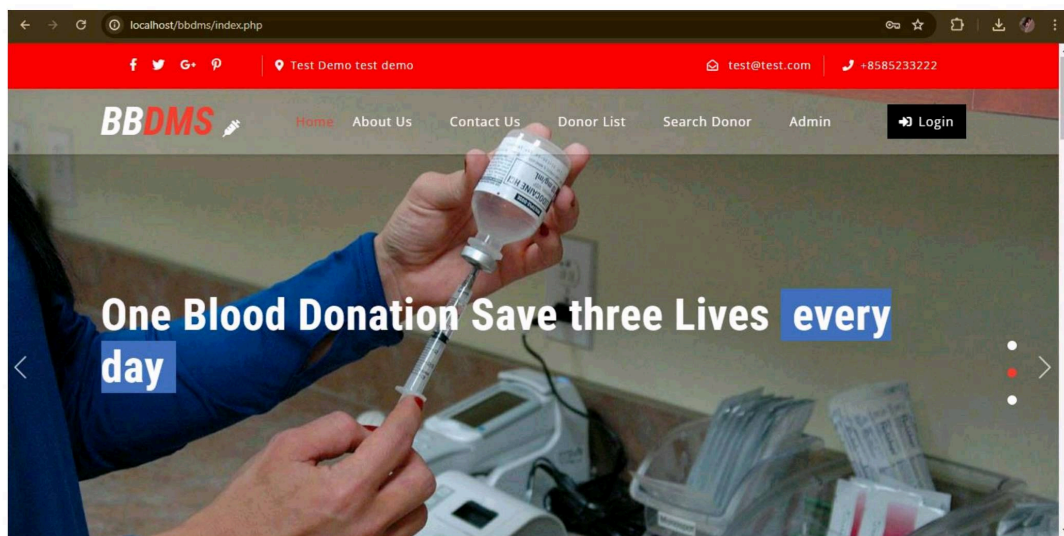
Send a password recovery link to the provided email address if it matches an existing donor's email.

c. Output: Password recovery link sent successfully

### 3. RESULTS AND DISCUSSION

#### 3.1 FRONTEND RESULTS

The home page features a header navigation menu, providing easy access to the About Us, Contact Us, and Login pages. Additionally, the page showcases engaging imagery related to the website's mission and objectives, creating an inviting atmosphere for users



**Fig 3.1 Home Page**

The Contact Us page serves as a direct communication channel between users and the website administrator. Alongside traditional contact methods, such as email and phone, the page features a review writing space where users can share feedback, suggestions, or inquiries directly with the admin. This interactive feature encourages user engagement and fosters a sense of community involvement within the website

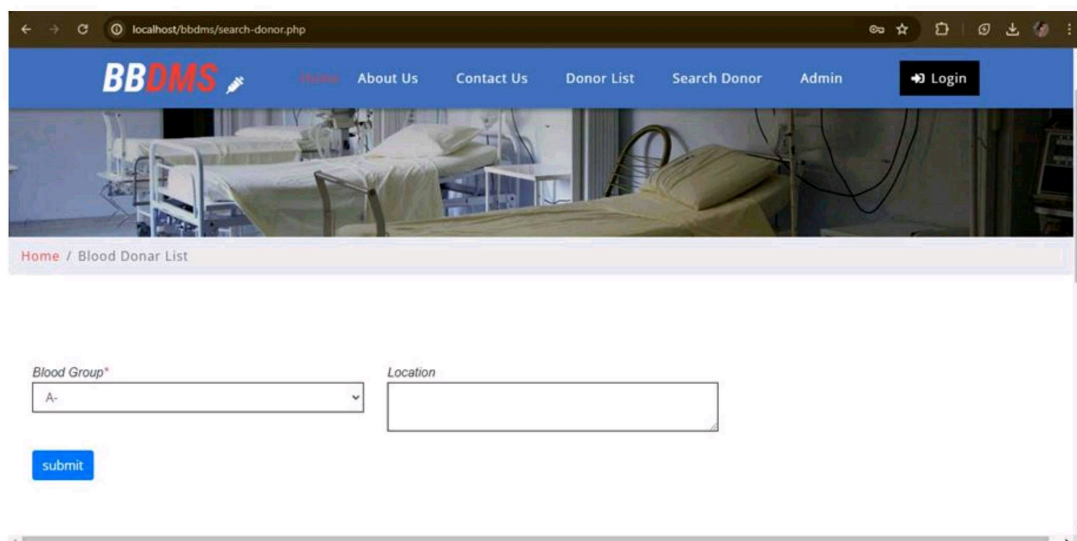
**Fig 3.2 Contact-us Page**

The Donor List page centralized platform allows users to easily identify potential donors who match specific criteria, facilitating efficient communication and coordination for blood donation purposes. By presenting essential donor details in an organized format, this page streamlines the process of finding suitable donors and enhances accessibility to life-saving assistance.

| Ashu Misra              |                                      | Test Demo               |                | John Doe                |                             |
|-------------------------|--------------------------------------|-------------------------|----------------|-------------------------|-----------------------------|
| Gender                  | Male                                 | Gender                  | Male           | Gender                  | Male                        |
| Blood Group             | O-                                   | Blood Group             | A+             | Blood Group             | O-                          |
| Mobile No.              | 7797987981                           | Mobile No.              | 9789797979     | Mobile No.              | 1236547890                  |
| Email ID                | ashu@gmail.com                       | Email ID                | test@gmail.com | Email ID                | johnd@gmail.com             |
| Age                     | 35                                   | Age                     | 56             | Age                     | 25                          |
| Address                 | H-900, Ravinderpuri colony, Varanasi | Address                 | Allahabad      | Address                 | A 5623 XYZ Street New Delhi |
| Message                 | Call me if blood require             | Message                 | gihgihgihghghj | Message                 | NA                          |
| <a href="#">Request</a> |                                      | <a href="#">Request</a> |                | <a href="#">Request</a> |                             |

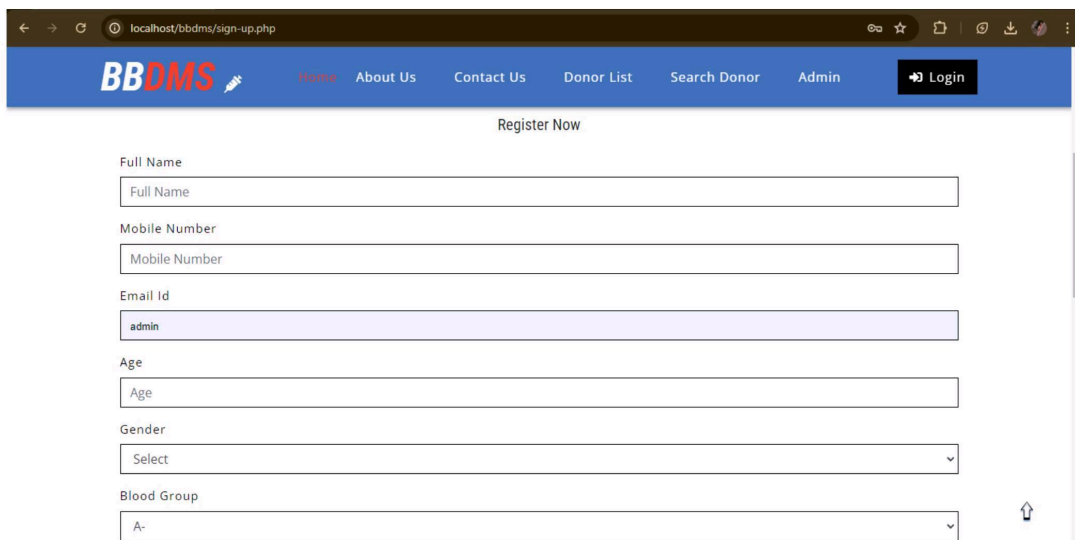
**Fig 3.3 Donors List Page**

The Search Donor page offers users the ability to specify their desired blood group and area location, enabling them to find matching donors efficiently. By providing these search criteria, users can quickly identify donors who meet their requirements and are located in their vicinity. This streamlined search process enhances accessibility to blood donation services, facilitating prompt assistance to those in need. Through the Search Donor page, users can easily connect with potential donors and initiate lifesaving interactions.



**Fig 3.4 Search Donor Page**

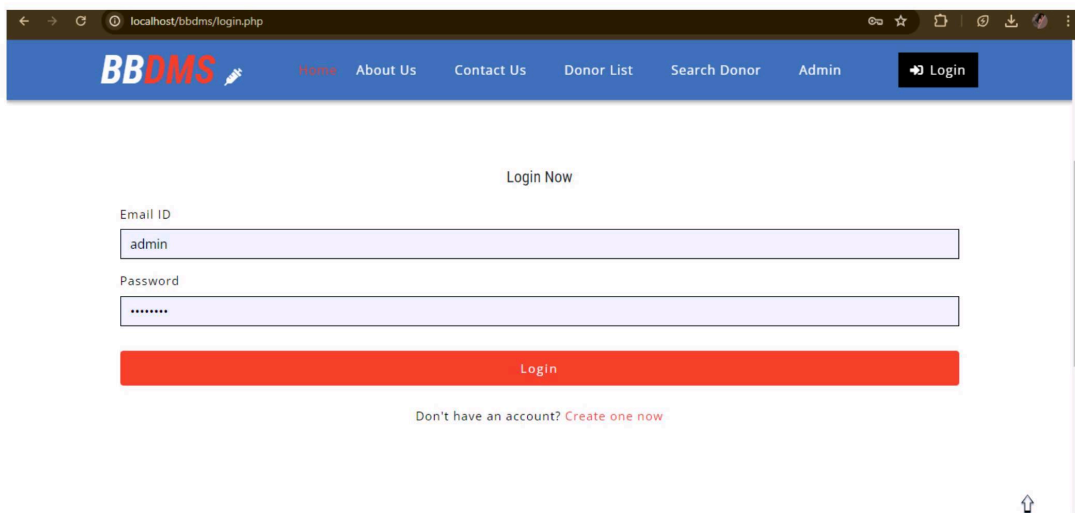
The Register page serves as the gateway for donors to join the blood donation community by providing their essential details. Donors are prompted to input their name, contact details, blood group, location, gender, and age, enabling the website to create a comprehensive donor profile. Additionally, donors are required to set a password to secure their account. By gathering this information, the Register page facilitates the creation of a diverse database of donors, enhancing the accessibility and efficiency of blood donation services. Through this user-friendly registration process, donors can easily contribute to lifesaving initiatives and make a meaningful impact within their communities.



The screenshot shows a web browser window with the address bar displaying 'localhost/bbdms/sign-up.php'. The website has a blue header with the 'BBdms' logo and navigation links: Home, About Us, Contact Us, Donor List, Search Donor, Admin, and a Login button. The main content area is titled 'Register Now' and contains a registration form with the following fields: Full Name, Mobile Number, Email Id (containing 'admin'), Age, Gender (a dropdown menu with 'Select' chosen), and Blood Group (a dropdown menu with 'A-' chosen). A scrollbar is visible on the right side of the page.

**Fig 3.5 Register Page**

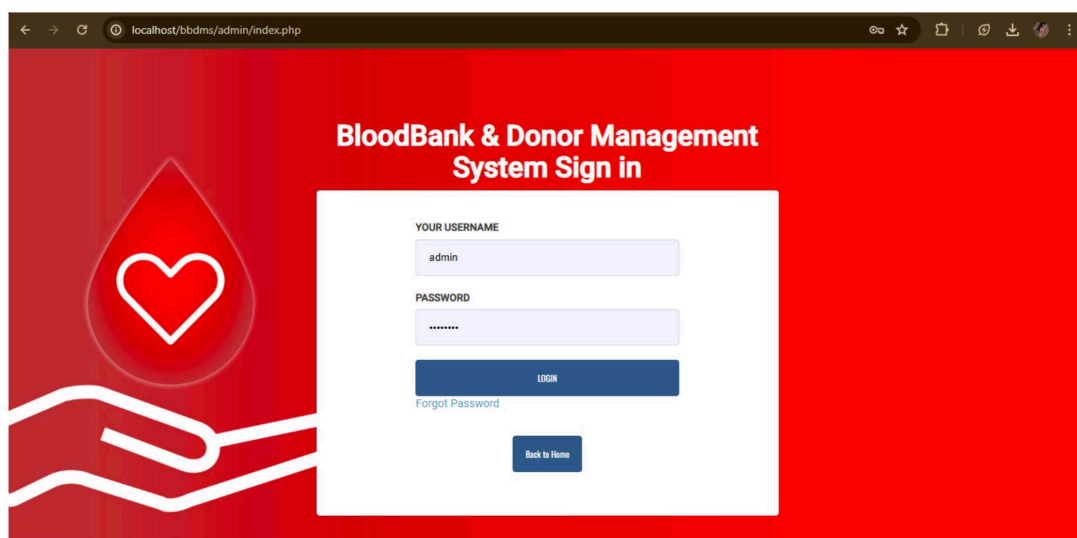
The Login page serves as the entry point for users to access their accounts securely. Users are required to input their email address and password to authenticate their identity and gain access to their respective accounts. By implementing this login mechanism, the website ensures data security and user authentication, enabling seamless access to account features and administrative privileges.



The screenshot shows a web browser window with the address bar displaying 'localhost/bbdms/login.php'. The website has the same blue header as the register page, with the 'BBdms' logo and navigation links: Home, About Us, Contact Us, Donor List, Search Donor, Admin, and a Login button. The main content area is titled 'Login Now' and contains a login form with two fields: Email ID (containing 'admin') and Password (displayed as '\*\*\*\*\*'). Below the password field is a red 'Login' button. At the bottom of the form, there is a link that says 'Don't have an account? Create one now'. A scrollbar is visible on the right side of the page.

**Fig 3.6 Login Page**

The Admin Login page provides a secure login interface specifically designed for website administrators. Admins are required to input their unique login credentials, typically consisting of a username and password, to authenticate their identity. Upon successful authentication, the admin is granted access to the admin dashboard—a centralized hub that offers comprehensive control over the website's functionalities and operations. From the admin dashboard, administrators can monitor website activities, manage donor records, oversee inquiries, and perform various administrative tasks. By implementing this dedicated login page for administrators, the website ensures secure access to critical administrative functions, enhancing efficiency and oversight in managing the blood donation platform.



***Fig 3.7 Admin Login Page***

This component displays the total number of donors who have registered on the platform. It provides donors with an overview of the size of the donor community, fostering a sense of belonging and collective impact.

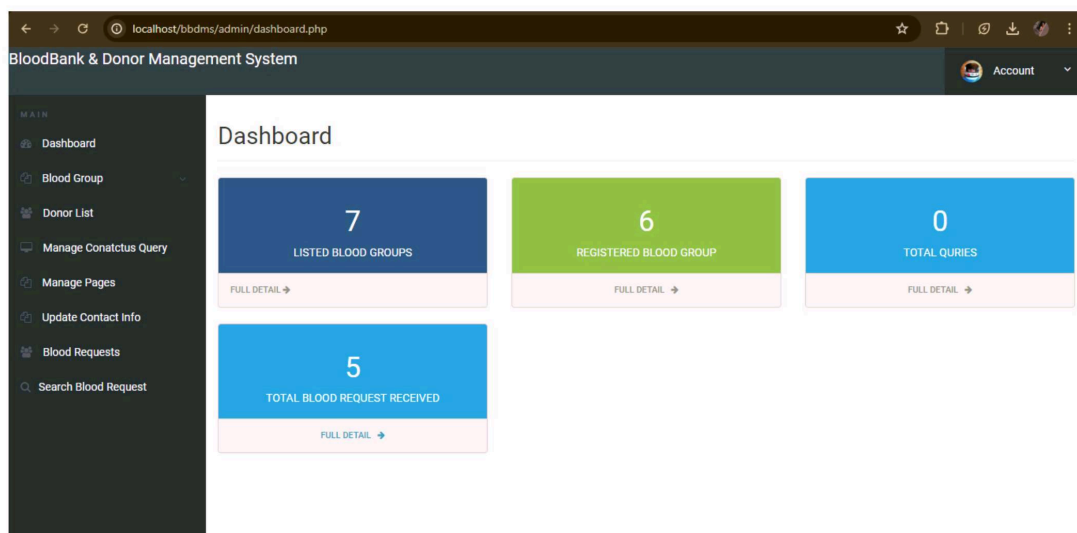
This component shows the total number of recipients who have submitted requests for blood donation. It enables donors to see the demand for their blood type and encourages them to contribute to meeting the needs of recipients.

This feature allows donors to access and view queries or messages received from recipients or other users. Donors can review these inquiries and respond accordingly, providing assistance or information as needed.

Donors have the capability to update certain pages or content on the website. This could include information about upcoming blood donation events, testimonials from donors and recipients, or updates on the organization's initiatives.

Donors can update their contact information, such as email address, phone number, or address, directly from the dashboard. This ensures that the organization has up-to-date contact details for donors and can communicate effectively with them.

The Donor Dashboard may also include additional features such as viewing donation history, scheduling appointments for blood donation, accessing educational resources about blood donation, and participating in community discussions or forums related to blood donation.



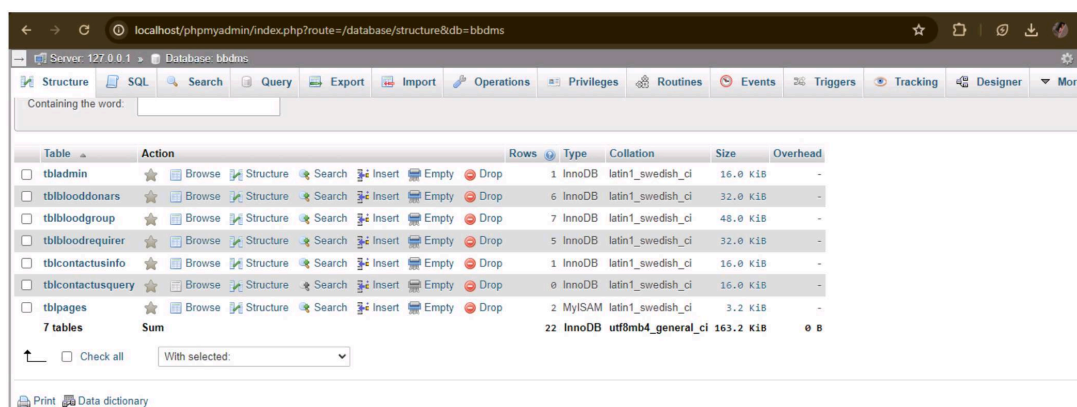
**Fig 3.8 Admin Dashboard Page**

### 3.2 BACKEND RESULTS

The backend database for the blood donation website encompasses several tables to efficiently manage data related to administrators, donors, contact queries, blood groups, specific donor details, and blood receivers. The Admin Table serves as a repository for administrator credentials, storing information such as usernames, hashed passwords, and contact details. This ensures secure access to administrative functionalities and facilitates oversight of website operations. The Donor Table holds vital information about registered blood donors, including their names, contact numbers, blood groups, locations, genders, ages, and hashed passwords. This comprehensive repository enables seamless communication between donors and recipients, fostering a robust blood donation community.

In addition, the Contact Us Queries Table records queries or messages submitted through the website's contact us page, capturing user inquiries along with relevant details such as names, email addresses, message content, and query status

The backend database also includes tables for Blood Groups, Specific Donors, and Blood Receivers, providing essential data structures to support blood donation operations. By organizing data in a structured manner, the backend database optimizes data management processes, enhances user experience, and promotes the core mission of facilitating life-saving blood donations within communities.



| Table                                      | Action | Rows | Type   | Collation          | Size      | Overhead |
|--------------------------------------------|--------|------|--------|--------------------|-----------|----------|
| <input type="checkbox"/> tbladmin          |        | 1    | InnoDB | latin1_swedish_ci  | 16.0 KiB  | -        |
| <input type="checkbox"/> tblblooddonors    |        | 6    | InnoDB | latin1_swedish_ci  | 32.0 KiB  | -        |
| <input type="checkbox"/> tblbloodgroup     |        | 7    | InnoDB | latin1_swedish_ci  | 48.0 KiB  | -        |
| <input type="checkbox"/> tblbloodrequirer  |        | 5    | InnoDB | latin1_swedish_ci  | 32.0 KiB  | -        |
| <input type="checkbox"/> tblcontactusinfo  |        | 1    | InnoDB | latin1_swedish_ci  | 16.0 KiB  | -        |
| <input type="checkbox"/> tblcontactusquery |        | 0    | InnoDB | latin1_swedish_ci  | 16.0 KiB  | -        |
| <input type="checkbox"/> tblpages          |        | 2    | MyISAM | latin1_swedish_ci  | 3.2 KiB   | -        |
| 7 tables                                   | Sum    | 22   | InnoDB | utf8mb4_general_ci | 163.2 KiB | 0 B      |

**Fig 3.9 Tables list in the Database**

| id | FullName   | MobileNumber | EmailId                  | Gender | Age | BloodGroup | Address                                       | Message                  | PostingDate         | status | Password               |
|----|------------|--------------|--------------------------|--------|-----|------------|-----------------------------------------------|--------------------------|---------------------|--------|------------------------|
| 6  | Ashu Misra | 7797987981   | ashu@gmail.com           | Male   | 35  | O-         | H-900, Ravinderpuri colony, Varanasi          | Call me if blood require | 2024-01-02 18:13:41 | 1      | 202cb962ac59075b964b07 |
| 10 | John Doe   | 1236547890   | john@gmail.com           | Male   | 25  | O-         | A 5623 XYZ Street New Delhi                   | NA                       | 2024-01-03 07:20:58 | 1      | f925916e2754e5e03f75dd |
| 11 | Amit Kumar | 1231231230   | amit@gmail.com           | Male   | 26  | AB+        | ABc Street Sector 20 Noida UP                 | NA                       | 2024-01-04 06:52:52 | 1      | f925916e2754e5e03f75dd |
| 12 | Anuj kumar | 1425362514   | ak@test.com              | Male   | 30  | A-         | NA                                            | NA                       | 2024-01-05 23:01:08 | 1      | f925916e2754e5e03f75dd |
| 13 | BENITA S   | 7200544171   | benita26022004@gmail.com | Female | 20  | O+         | NO 1, GANESH NAGAR, PONNIAMMENMEDU, CH-600110 |                          | 2024-03-14 19:30:28 | 1      | 42f4b247702c99bda0fc7b |

**Fig 3.10 Donor's details Table**

| ID | BloodDonarID | name        | EmailId        | ContactNumber | BloodRequirefor | Message                    | ApplyDate           |
|----|--------------|-------------|----------------|---------------|-----------------|----------------------------|---------------------|
| 1  | 6            | CC          | rak@gmail.com  | 7894561236    | Father          | Please help                | 2024-01-06 17:27:24 |
| 2  | 3            | Mukesh      | muk@gmail.com  | 5896231478    | Others          | Please help                | 2024-01-06 17:28:48 |
| 3  | 6            | Hitesh      | hit@gmail.com  | 1236547896    | Brother         | do the needful             | 2024-01-07 17:32:12 |
| 4  | 10           | Rahul Singh | rahk@gmail.com | 2536251425    | Mother          | Please help me             | 2024-01-08 07:21:52 |
| 5  | 11           | Anuj Kumar  | ak@gmail.com   | 8525232102    | Others          | Need blood on urgent basis | 2024-01-08 06:54:18 |

**Fig 3.11 Blood Request Table**

## **4. CONCLUSION**

In conclusion, the development and implementation of a full-stack Blood Donation website mark a significant advancement in enhancing the efficiency, accessibility, and overall quality of healthcare services. The integration of both front-end and back-end technologies allows for a seamless and user-friendly experience for both healthcare professionals and patients.

Through the utilization of modern web technologies, such as responsive design and intuitive user interfaces, the Blood Donation website ensures accessibility across various devices, making information readily available to users at any time and from anywhere. This accessibility fosters improved communication, coordination, and collaboration among healthcare providers, leading to enhanced patient care.

The robust back-end infrastructure plays a crucial role in managing and processing vast amounts of data generated in a healthcare setting. This includes patient records, appointment scheduling, inventory management, and other critical functionalities. The full-stack approach facilitates the integration of diverse systems, streamlining operations and reducing the likelihood of errors.

Security is a paramount concern in healthcare, and the full-stack development of the Blood Donation website ensures the implementation of robust security measures. This safeguards sensitive patient information, maintains the integrity of data, and complies with regulatory standards, instilling trust among both healthcare professionals and patients.

Moreover, the continuous evolution of healthcare technologies demands a scalable and adaptable solution. The full-stack architecture allows for flexibility in incorporating new features, updates, and integrations to keep pace with the dynamic nature of the healthcare industry. This adaptability ensures that the Blood Donation website remains relevant and effective in addressing the evolving needs of the healthcare ecosystem.

In conclusion, the development of a Blood Donation website using a full-stack approach not only streamlines daily operations but also contributes to the overall improvement of healthcare delivery. By combining cutting-edge technologies, user-centric design, and a robust back-end infrastructure, such a website becomes an invaluable tool in promoting efficiency, accuracy, and accessibility in the healthcare domain.

## REFERENCES

- Amos Q. Haviv . March 2021. "MEAN Web Development".
- Deepu K Sasidharan and Sendil Kumar. September 2023. "Full Stack Development with JHipster".
- Pradeep Reddy Mamidi. October 2020. "Blood Donation System - A Case Study" (International Journal of Computer Science and Information Technologies).
- Stack Overflow (<https://stackoverflow.com>): A community-driven platform where developers discuss and share their knowledge. You can find discussions on full-stack development and specific technologies.
- W3Schools (<https://www.w3schools.com>): A resource for learning web technologies with tutorials and references.

## APPENDICES

### Sample Code

```
.</html>
<head>
<title>HMS</title>
<link rel="shortcut icon" type="image/x-icon" href="images/favicon.png" />
<link rel="stylesheet" type="text/css" href="style1.css">
<link
href="https://fonts.googleapis.com/css?family=IBM+Plex+Sans&display=swa
p" rel="stylesheet">
<!--<link rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.c
ss" integrity="sha384-
HSMxcRTRxnN+Bdg0JdbxYKkThecOKuH5zCYotlSAcp1+c8xmyTe9GYg1l9a
69psu" crossorigin="anonymous"> -->

<link rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/css/bootstrap.min.c
ss" integrity="sha384-
ggOyR0iXCbMQv3Xipma34MD+dH/1fQ784/j6cY/iJTQUOhcWr7x9JvoRxT2
MZw1T" crossorigin="anonymous">

<link rel="stylesheet" href="vendor/fontawesome/css/font-
awesome.min.css">
<link
href="//maxcdn.bootstrapcdn.com/bootstrap/4.1.1/css/bootstrap.min.css"
rel="stylesheet" id="bootstrap-css">
<style >
    .form-control {
        border-radius: 0.75rem;
    }
</style>
<script>
    var check = function() {
    if (document.getElementById('password').value ==
    document.getElementById('cpassword').value) {
```



```

        <li class="nav-item" style="margin-right: 40px;">
            <a class="nav-link js-scroll-trigger" href="index.php" style="color:
white;font-family: 'IBM Plex Sans', sans-serif;"><h6>HOME</h6></a>
        </li>
<li class="nav-item" style="margin-right: 40px;">
    <a class="nav-link js-scroll-trigger" href="services.html" style="color:
white;font-family: 'IBM Plex Sans', sans-serif;"><h6>ABOUT US</h6></a>
    </li>

    <li class="nav-item">
        <a class="nav-link js-scroll-trigger" href="contact.html" style="color:
white;font-family: 'IBM Plex Sans', sans-serif;"><h6>CONTACT</h6></a>
    </li>
</ul>
</div>
</div>
</nav>
<div class="container register" style="font-family: 'IBM Plex Sans', sans-
serif;">
    <div class="row">
        <div class="col-md-3 register-left" style="margin-top: 10%;right:
5%">
            
            <h3>Welcome</h3>

        </div>
        <div class="col-md-9 register-right" style="margin-top: 40px;left:
80px;">
            <ul class="nav nav-tabs nav-justified" id="myTab" role="tablist"
style="width: 40%;">
                <li class="nav-item">
                    <a class="nav-link active" id="home-tab" data-
toggle="tab" href="#home" role="tab" aria-controls="home" aria-
selected="true">Patient</a>
                </li>
                <li class="nav-item">

```

```

        <a class="nav-link" id="profile-tab" data-toggle="tab"
href="#profile" role="tab" aria-controls="profile" aria-
selected="false">Doctor</a>
    </li>
    <li class="nav-item">
        <a class="nav-link" id="profile-tab" data-toggle="tab"
href="#admin" role="tab" aria-controls="admin" aria-
selected="false">Receptionist</a>
    </li>
</ul>
<div class="tab-content" id="myTabContent">
    <div class="tab-pane fade show active" id="home"
role="tabpanel" aria-labelledby="home-tab">
        <h3 class="register-heading">Register as Patient</h3>
        <form method="post" action="func2.php">
            <div class="row register-form">

                <div class="col-md-6">
                    <div class="form-group">
                        <input type="text" class="form-control"
placeholder="First Name *" name="fname" onkeydown="return
alphaOnly(event);" required/>
                    </div>
                    <div class="form-group">
                        <input type="email" class="form-control"
placeholder="Your Email *" name="email" />
                    </div>
                    <div class="form-group">
                        <input type="password" class="form-control"
placeholder="Password *" id="password" name="password"
onkeyup='check();' required/>
                    </div>

                    <div class="form-group">
                        <div class="maxl">
                            <label class="radio inline">
                                <input type="radio" name="gender"
value="Male" checked>

```

```

        <span> Male </span>
    </label>
    <label class="radio inline">
        <input type="radio" name="gender"
value="Female">
        <span>Female </span>
    </label>
</div>
    <a href="index1.php">Already have an
account?</a>
</div>
</div>
<div class="col-md-6">
    <div class="form-group">
        <input type="text" class="form-control"
placeholder="Last Name *" name="lname" onkeydown="return
alphaOnly(event);" required/>
    </div>

    <div class="form-group">
        <input type="tel" minlength="10" maxlength="10"
name="contact" class="form-control" placeholder="Your Phone *" />
    </div>

    <div class="form-group">
        <input type="password" class="form-control"
id="cpassword" placeholder="Confirm Password *" name="cpassword"
onkeyup='check();' required/><span id='message'></span>
    </div>

    <input type="submit" class="btnRegister"
name="patsub1" onclick="return checklen();" value="Register"/>
</div>

</div>
</form>
</div>
<div class="tab-pane fade show" id="profile" role="tabpanel" aria-
labelledby="profile-tab">

```

```

<h3 class="register-heading">Login as Doctor</h3>
<form method="post" action="func1.php">
<div class="row register-form">
  <div class="col-md-6">
    <div class="form-group">
      <input type="text" class="form-control"
placeholder="User Name *" name="username3" onkeydown="return
alphaOnly(event);" required/>
    </div>
  </div>
  <div class="col-md-6">
    <div class="form-group">
      <input type="password" class="form-control"
placeholder="Password *" name="password3" required/>
    </div>
  </div>
  <input type="submit" class="btnRegister" name="docsub1" value="Login"/>
</div>
</div>
</form>
</div>
<div class="tab-pane fade show" id="admin" role="tabpanel" aria-
labelledby="profile-tab">
  <h3 class="register-heading">Login as Admin</h3>
  <form method="post" action="func3.php">
  <div class="row register-form">
    <div class="col-md-6">
      <div class="form-group">
        <input type="text" class="form-control"
placeholder="User Name *" name="username1" onkeydown="return
alphaOnly(event);" required/>
      </div>
    </div>
    <div class="col-md-6">
      <div class="form-group">
        <input type="password" class="form-control"
placeholder="Password *" name="password2" required/>
      </div>
    </div>
  </div>
  </div>

```

```

        </div>

        <input        type="submit"        class="btnRegister"
name="adsub" value="Login"/>
    </div>
</div>
</form>
</div>
</div>
</div>
</div>
</div>
</div>
</body>

<script        src="https://code.jquery.com/jquery-3.3.1.slim.min.js"
integrity="sha384-
q8i/X+965DzO0rT7abK41JStQIAqVgRVzpbzo5smXKp4YfRvH+8abtTE1Pi6ji
zo" crossorigin="anonymous"></script>

<script
src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.14.7/umd/popper.min.j
s"                                integrity="sha384-
UO2eT0CpHqdSJJQ6hJty5KVphtPhzWj9WO1clHTMGa3JDZwrnQq4sF86dl
HNDz0W1" crossorigin="anonymous"></script>

<script
src="https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/js/bootstrap.min.js"
integrity="sha384-
JjSmVgyd0p3pXB1rRibZUAYoIIy6OrQ6VrjIEaFf/nJGzIxFDsf4x0xIM+B07jRM
" crossorigin="anonymous"></script>

<script
src="https://stackpath.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"
integrity="sha384-
aJ21OjIMXNL5UyII/XNwTMqvzeRMZH2w8c5cRVpzpU8Y5bApTppSuUkhZX
N0VxHd" crossorigin="anonymous"></script>

</html>

```