VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI - 590018

DBMS Mini Project Report on

"Blood Bank Management System"

Submitted in partial fulfillment of the requirement for the award of the degree of

Bachelor of Engineering

in

Computer Science and Engineering

Submitted By

SHIVAM ANAND	**1DT21CS143**
SHREYA RAI	**1DT21CS144**
VISHAL KM	**1DT21CS182**
SUMEET PATIL	**1DT21CS187**

Under the Guidance of

Prof. Shylaja B

Assistant Professor, Department of CSE

DAYANANDA SAGAR ACADEMY OF TECHNOLOGY AND MANAGEMENT

Udayapura, Kanakapura Road, Bangalore-560082

(Affiliated to VTU, Belagavi and Approved by AICTE, New Delhi), CE, CSE, ECE, EEE, ISE,

ME Courses Accredited by NBA, New Delhi, NAAC A+

Department of Computer Science and Engineering

Academic Year : 2023-24

DAYANANDA SAGAR ACADEMY OF TECHNOLOGY AND MANAGEMENT

Udayapura, Kanakapura Road, Bangalore-560082

Department of Computer Science and Engineering

CERTIFICATE

Certified that the Mini Project titled **"Blood Bank Management System"** carried out by **SHIVAM ANAND**, bearing **USN 1DT21CS143, SHREYA RAI**, bearing **USN 1DT21CS144, VISHAL KM**, bearing **USN 1DT21CS182, SUMEET PATIL**, bearing **USN 1DT21CS187,** Bonafede students of Dayananda Sagar Academy 0f Technology and Management, is in partial fulfillment for the award of the **BACHELOR OF ENGINEERING** in **Computer Science and Engineering** from Visvesvaraya Technological University, Belagavi during the year 2023-2024. It is certified that all the corrections/suggestions indicated for Internal Assessment have been incorporated in the report submitted to the department. The Project report has been approved as it satisfies the academic requirements in respect of the Mini Project Work prescribed for the said Degree.

Prof. Shylaja B Assistant Professor Department of CSE DSATM, Bengaluru.	Dr. Kavitha C Professor & HOD Department of CSE DSATM, Bengaluru.	Dr. M. Ravishankar Principal DSATM, Bengaluru.

Examiner 1:

Name……..……....

Signature……..……

Examiner 2:

Name…….

Signature…….

DAYANANDA SAGAR ACADEMY OF TECHNOLOGY AND MANAGEMENT
Udayapura, Kanakapura Road, Bangalore-560082
Department of Computer Science and Engineering

DECLARATION

We, **SHIVAM ANAND**, bearing **USN 1DT21CS143, SHREYA RAI**, bearing **USN 1DT21CS144, VISHAL KM**, bearing **USN 1DT21CS182, SUMEET PATIL**, bearing **USN 1DT21CS187,** students of Seventh Semester B.E, Department of Computer Science and Engineering, Dayananda Sagar Academy 0f Technology and Management, Bengaluru, declare that the Mini Project Work titled "**Blood Bank Management System"** has been carried out by us and submitted in partial fulfilment of the course requirements for the award of degree in **Bachelor of Engineering** in **Computer Science and Engineering** from **Visvesvaraya Technological University, Belagavi** during the academic year **2023- 2024**.

1. SHIVAM ANAND	1DT21CS143
2. SHREYA RAI	1DT21CS144
3. VISHAL KM	1DT21CS182
4. SUMEET PATIL	1DT21CS187

Place: Bengaluru

Date:

ABSTRACT

The Blood Bank Management System (BBMS) is a pivotal project aimed at optimizing the operations of blood banks through three main modules: Admin, Donors, and Patients. The system facilitates efficient management of blood inventory, donor information, and blood distribution, ensuring seamless blood transfusion processes. The Admin module acts as the system's backbone, empowering administrators to oversee all activities comprehensively. Admin functionalities include Admins can efficiently manage donation requests by accepting or rejecting them based on donor details and available stock. Additionally, they possess the authority to edit or delete donor and patient records as necessary, ensuring data accuracy and compliance. The Donor module serves as a platform for individuals willing to contribute to blood donation efforts. Upon initiating a donation request, donors await admin approval. They receive real-time updates on request status and are informed when their donation is scheduled at a specified donation camp. The Patient module facilitates the process for individuals in need of blood transfusions. Patients provide essential details such as blood type and quantity required, which admins review for approval based on patient details and available blood stock. The BBMS optimizes blood donation and distribution processes, ensuring efficiency and transparency. By effectively managing donor, patient, and blood inventory records, this system plays a critical role in enhancing healthcare services' ability to provide timely and critical blood transfusions.

ACKNOWLEDGEMENT

The satisfaction and the euphoria that accompany the successful completion of any task would be incomplete without the mention of the people who made it possible. The constant guidance of these people and encouragement provided, crowned us with success and glory. We take this opportunity to express our gratitude to one and all.

It gives us immense pleasure to present before you our project titled "**Blood Bank Management System**". The joy and satisfaction that accompanies the successful completion of any task would be incomplete without the mention of those who made it possible. We are glad to express our gratitude towards our prestigious institution **DAYANANDA SAGAR ACADEMY OF TECHNOLOGY AND MANAGEMENT** for providing us with utmost knowledge, encouragement and the maximum facilities in undertaking this project.

We wish to express a sincere thanks to our respected Principal **Dr. M Ravi Shankar**, Principal, DSATM for all his support.

We express our deepest gratitude and special thanks to **Dr. Kavitha C,** H.O.D, Dept. of Computer Science Engineering, for all her guidance and encouragement.

We sincerely acknowledge the guidance and constant encouragement of our mini-project guide, **Prof. Shylaja B,** Assistant Professor, Dept. of Computer Science & Engineering.

Shivam Anand	1DT21CS143
Shreya Rai	1DT21CS144
Vishal KM	1DT21CS182
Sumeet Patil	1DT21CS187

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1
INTRODUCTION

The Blood Bank Management System (BBMS) is a pivotal innovation designed to revolutionize the management of blood donation and distribution processes. With three main modules – Admin, Donors, and Patients – the system offers a comprehensive solution to the challenges faced by traditional blood bank systems. Through the Admin module, administrators gain complete oversight and control, ensuring efficient management of blood stock, donor records, and patient information. Donors can easily initiate donation requests, track their history, and receive updates on their requests through the Donor module, while patients can seamlessly submit blood requests and monitor their status via the Patient module. By centralizing data, automating processes, and enhancing transparency, the BBMS aims to optimize blood allocation, ultimately saving lives and improving healthcare outcomes.

1.1 PURPOSE

- Optimizing blood donation and distribution processes through streamlined management and resource allocation.
- Enhancing transparency and accuracy in donor information, inventory tracking, and request handling.
- Improving patient care and safety by facilitating timely access to safe blood transfusions.

1.2 SCOPE

The scope of the Blood Bank Management System (BBMS) encompasses the digitization and optimization of various blood bank processes, including donor management, blood inventory tracking, and blood distribution. The system aims to provide a user-friendly platform for administrators, donors, and patients to interact seamlessly, ensuring efficient management of blood resources and timely responses to donation requests and patient needs. Additionally, the BBMS will incorporate features such as donor eligibility screening, inventory monitoring, and request handling to enhance transparency, accuracy, and accountability within blood banks. By centralizing data and automating workflows, the system seeks to improve overall operational efficiency, resource utilization, and ultimately, patient care and safety.

CHAPTER 2
REQUIREMENT SPECIFICATION

2.1 Hardware Configuration

Client side

RAM: 512MB

Hard disk:10GB Processor: 1.0Ghz

Server side

RAM: 1GB

Hard disk: 20GB

Processor: 2.0Ghz

2.2 Software Configuration

Web browser: Chrome or any other equivalent browser

Operating System: Windows or any equivalent OS

XAMPP local serve

CHAPTER 3
SYSTEM ANALYSIS AND DESIGN

3.1 ANALYSIS

Manual processes are typically slower and less efficient compared to automated systems. This inefficiency can lead to delays in processing tasks and responses to requests. The Blood Bank Management System (BBMS) is an innovative software solution designed to streamline and enhance the operations of blood banks. This project aims to address the challenges faced by traditional blood bank systems by introducing a comprehensive and efficient digital platform. The BBMS project focuses on optimizing the entire process of blood collection, storage, distribution, and management.

Disadvantages of present system:

- Not user friendly
- Too much clutter
- Time consuming
- Less Efficient

3.2 DESIGN INTRODUCTION

The system design of the Blood Bank Management System (BBMS) revolves around three interconnected modules: Admin, Donors, and Patients, each tailored to serve specific roles within the blood bank ecosystem. With a focus on user accessibility, data integrity, and workflow efficiency, the BBMS architecture ensures seamless interaction and coordination among these modules. Robust database structuring, intuitive user interfaces, and secure authentication mechanisms form the cornerstone of the system design, enabling administrators, donors, and patients to execute their respective tasks effectively. Through careful consideration of system scalability and performance optimization, BBMS aims to streamline blood bank operations, enhance donor-patient engagement, and facilitate timely and accurate blood transfusion processes. The modular design approach not only caters to the unique requirements of administrators, donors, and patients but also fosters interoperability and adaptability to evolving needs within the blood bank management domain.

3.2.1 CONTROL FLOW DIAGRAM

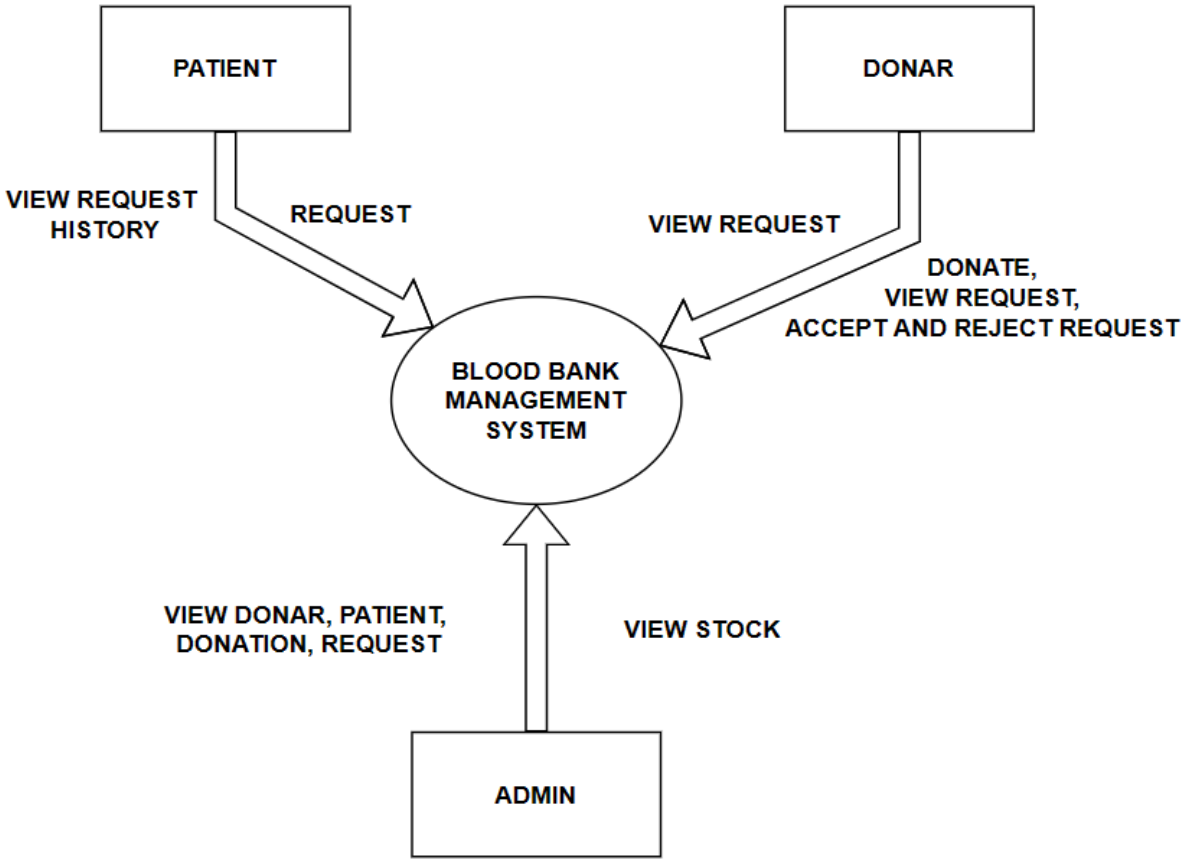


Figure 3.1: shows the flow of control through different entities in the system

3.2.2 SCHEMA DIAGRAM

Admins

id(int)	name(varchar)	email(varchar)	password(varchar)	mobile(bigint)

Donors

id(int)	name(varchar)	email(varchar)	password(varchar)	mobile(bigint)

Patients

id(int)	name(varchar)	email(varchar)	password(varchar)	mobile(bigint)

Donation

id(int)	donor_id(int)	blood_group(varchar)	no_units(int)	disease(varchar)	status(int)

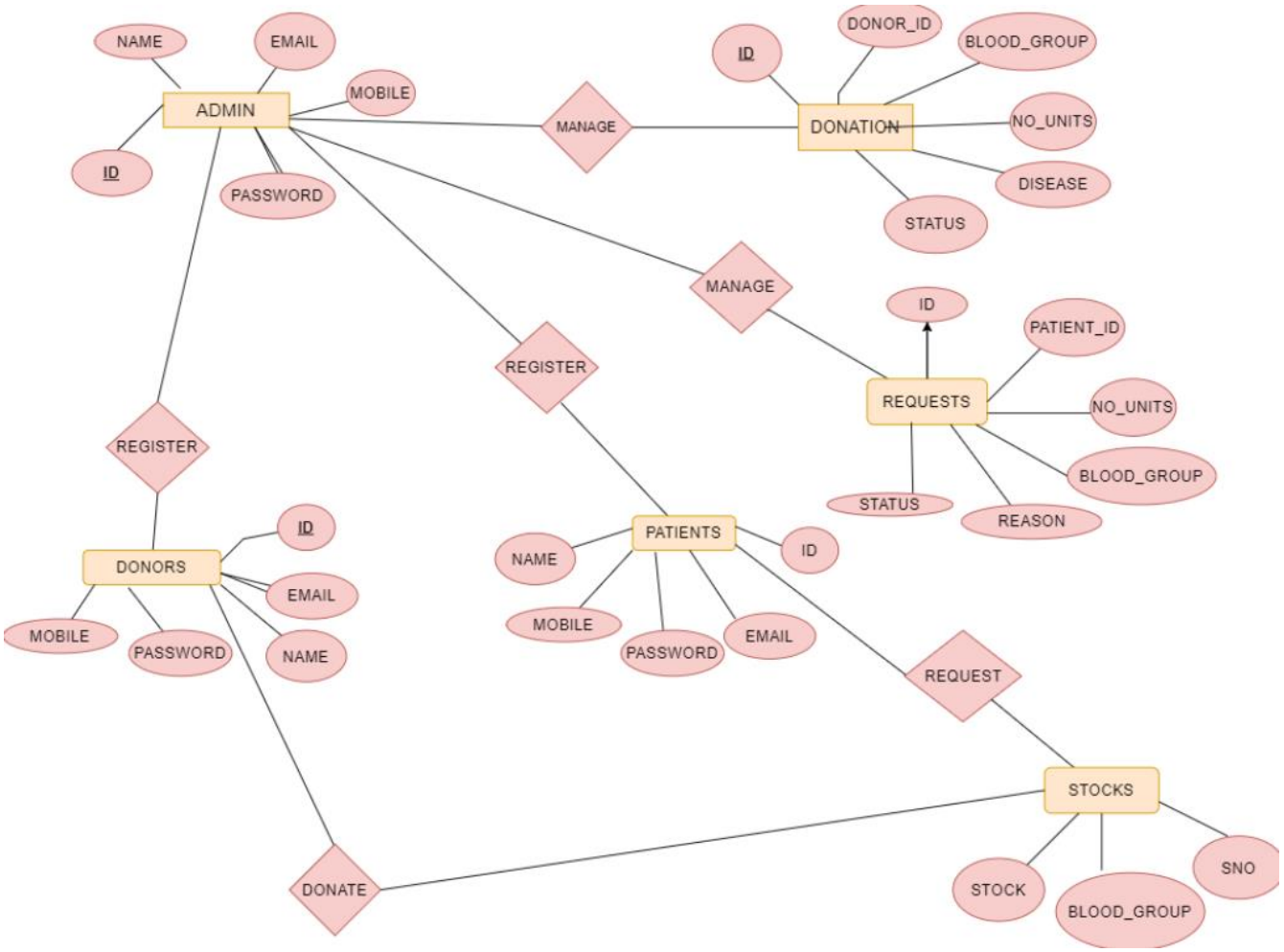
Requests

id(int)	patient_id(int)	no_units(int)	blood_group(varchar)	reason(varchar)	status(int)

Stocks

sno(int)	blood_group(varchar)	stock(int)

3.2.3 ER DIAGRAM



3.2.4 DATA TABLE

Table	Action	Rows	Type	Collation	Size	Overhead
admins	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_general_ci	16.0 KiB	-
donation	Browse Structure Search Insert Empty Drop	10	InnoDB	utf8mb4_general_ci	16.0 KiB	-
donors	Browse Structure Search Insert Empty Drop	7	InnoDB	utf8mb4_general_ci	16.0 KiB	-
patients	Browse Structure Search Insert Empty Drop	5	InnoDB	utf8mb4_general_ci	16.0 KiB	-
requests	Browse Structure Search Insert Empty Drop	7	InnoDB	utf8mb4_general_ci	16.0 KiB	-
stocks	Browse Structure Search Insert Empty Drop	10	InnoDB	utf8mb4_general_ci	16.0 KiB	-
6 tables	**Sum**	**40**	**InnoDB**	**utf8mb4_general_ci**	**96.0 KiB**	**0 B**

It contains the description of all the tables in the database

Table 3.1 Admin Table

id	name	email	password	mobile
1	Admin User	admin@gmail.com	admin123	8888888888

Table 3.2 Donation Table

id	donor_id	blood_group	no_units	disease	status
301	101	B+	20	Nothing	1
302	102	AB+	15	Nothing	1
1005	101	B+	5	No disease	1
1006	104	A	10	Noo	2
1008	104	A	5	No nothing	1
1009	105	O+	18	I do not have any disease	1
1010	105	O+	5	Nothing	1
1018	108	A-	24	Nothing	1
1019	109	B	30	Nothing	1
1020	110	O-	18	Nothing	1

Table 3.3 Requests Table

id	patient_id	no_units	blood_group	reason	status
1	501	10	B+	Dengue fever	1
1102	503	25	O+	Fever	2
1105	505	2	A+	High fever	1
1106	505	2	A-	Dengue	1
1107	506	50	B	Abc	2
1108	507	20	O-	XYZ	2
1109	507	2	O-	ABC	1

Table 3.4 Donors Table

id	name	email	password	mobile
101	Test donor	testdonor@gmail.com	test123	9999999999
102	test donor 2	testdonor2@gmail.com	123	8888888899
104	Donor Name 1	donor1@gmail.com	12345	9878584516
105	Donor Name 2	donor2@gmail.com	12345	8458748452
108	Donor Name 3	donor3@gmail.com	12345	9999999999
109	Donor Name 4	donor4@gmail.com	12345	8888888888
110	Donor Name 5	donor5@gmail.com	12345	6666666666

Table 3.5 Patients Table

id	name	email	password	mobile
501	Patient Name 1	patient1@gmail.com	12345	2147483647
503	Patient Name 2	patient2@gmail.com	12345	2147483647
505	Patient Name 3	patient3@gmail.com	12345	9898989898
506	Patient Name 4	patient4@gmail.com	12345	7777777777
507	Patient Name 5	patient5@gmail.com	12345	5555555555

Table 3.6 Stocks Table

sno	blood_group	stock
1	A	5
2	A+	11
3	A-	22
4	B	30
5	B+	15
6	B-	0
7	AB+	15
8	AB-	0
9	O+	23
10	O-	16

CHAPTER 4

IMPLEMENTATION

The Blood Bank Management System comprises three modules:

Admin Module:

- **Dashboard:** Provides an overview of key metrics like blood stock levels, recent donations, and pending requests.
- **Manage Donors:** Enables admins to add, view, edit, and delete donor records, including personal information and donation history.
- **Manage Patients:** Facilitates the management of patient records, including medical history, blood type requirements, and pending requests.
- **Manage Blood Donations:** Oversees the donation process, including accepting/rejecting requests, scheduling drives, and updating statuses.
- **Manage Blood Requests:** Handles patient requests, allocating appropriate units and updating request statuses.

Donor Module:

- **View Profile:** Donors can view and update their information, including donation history and contact preferences.
- **Make Donation Requests:** Donors can submit blood donation requests, specifying availability and location.
- **View Donation Status:** Allows donors to track the status of their requests and view updates on drives/events.

Patient Module:

- **Registration:** Patients can register by providing personal details, medical history, and blood type requirements.
- **Make Blood Requests:** Patients can request blood units, specifying type, quantity, and urgency.
- **View Request Status:** Patients can monitor request status, including updates on availability and delivery schedules.

The modular design ensures efficient blood donation and distribution processes, maintaining transparency and accountability.

4.1 DATABASE CONNECTIVITY

This PHP code establishes a connection to a MySQL database using the MySQLi extension.

DB Connectivity:

```
<?php
$connection = mysqli_connect("localhost","root","") or die("Can't connect to
database");
$db = mysqli_select_db($connection,"bbms");
?>
```

- The PHP script initiates a connection to a MySQL database using the **MySQLi** extension.
- The **mysqli_connect()** function is called with parameters specifying the hostname ("localhost"), username ("root"), and an empty password.
- If the connection to the database server fails, the script terminates with the error message "Can't connect to database".
- Upon successful connection, the **mysqli_select_db()** function selects the "bbms" database for subsequent database operations.
- The selected database becomes the active database for the PHP script, allowing database queries and transactions to be performed on the **"bbms"** database.

1.1 SOURCE CODE

Home Page:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Blood Bank Management</title>
    <!-- Bootstrap files -->
    <link rel="stylesheet" href="bootstrap/css//bootstrap.min.css">
    <script src="bootstrap/js/bootstrap.min.js"></script>
    <!-- External CSS file -->
    <link rel="stylesheet" href="css/styles.css">
</head>
<body>···
<!-- Main content -->
<div class="container-fluid" style="margin:50px;">···
</div>
<div class="container-fluid">···
</div>
<div class="container-fluid" style="margin-bottom: 5%;">···
</div>
<div class="container-fluid">···
</div>
</body>
</html>
```

Admin Login Page:

```php
<?php
session_start();
if(isset($_POST['login'])){
    include('../includes/connection.php');
    $query = "select id,email,password,name from admins where email = '$_POST[email]' AND password = '$_POST[password]'";
    $query_run = mysqli_query($connection,$query);
    if(mysqli_num_rows($query_run)){ ···
    }
    else{ ···
    }
}
?>
<!DOCTYPE html>
<html lang="en">
<head> ···
</head>
<body> ···
<div class="container-fluid"> ···
</div>
</body>
</html>
```

Admin Dashboard:

```php
<?php
session_start();
if(isset($_SESSION['email'])){
include('../includes/connection.php');

$total_a = 0;
$total_ap = 0;
$total_an = 0;
$total_b = 0;
$total_bp = 0;
$total_bn = 0;
$total_abp = 0;
$total_abn = 0;
$total_op = 0;
$total_on = 0;

$query = "select stock from stocks where blood_group = 'A'";
$query_run = mysqli_query($connection,$query);
while($row = mysqli_fetch_assoc($query_run)){ ···
}

$query = "select stock from stocks where blood_group = 'A+'";
$query_run = mysqli_query($connection,$query);
while($row = mysqli_fetch_assoc($query_run)){ ···
}

$query = "select stock from stocks where blood_group = 'A-'";
$query_run = mysqli_query($connection,$query);
while($row = mysqli_fetch_assoc($query_run)){ ···
}

$query = "select stock from stocks where blood_group = 'B'";
$query_run = mysqli_query($connection,$query);
while($row = mysqli_fetch_assoc($query_run)){ ···
}
```

Donor Login Page:

```php
<?php
session_start();
if(isset($_POST['login'])){
    include('../includes/connection.php');
    $query = "select id,email,password,name from donors where email = '$_POST[email]' AND password = '$_POST[password]'";
    $query_run = mysqli_query($connection,$query);
    if(mysqli_num_rows($query_run)){ ···
    }
    else{ ···
    }
}
?>
<!DOCTYPE html>
<html lang="en">
<head> ···
</head>
<body> ···
<div class="container-fluid">
<div class="row"> ···
</div>
</div>
</body>
</html>
```

Patient Login Page:

```php
<?php
session_start();
if(isset($_POST['login'])){
    include('../includes/connection.php');
    $query = "select id,email,password,name from patients where email = '$_POST[email]' AND password = '$_POST[password]'";
    $query_run = mysqli_query($connection,$query);
    if(mysqli_num_rows($query_run)){ ···
    }
    else{ ···
    }
}
?>
<!DOCTYPE html>
<html lang="en">
<head> ···
</head>
<body> ···
<div class="container-fluid">
<div class="row"> ···
</div>
</div>
</body>
</html>
```

CHAPTER 5

TESTING

Testing plays a pivotal role in ensuring the functionality, reliability, and security of the Blood Bank Management System (BBMS) before its deployment. The following testing strategies and methodologies are employed to validate the system's performance and identify any potential issues:

- **Unit Testing:**

  Unit testing involves testing individual components or modules of the BBMS in isolation to verify their correctness and functionality. Each module, such as donor management, patient management, and inventory tracking, undergoes rigorous testing to ensure that it performs as expected.

- **Integration Testing:**

  Integration testing evaluates the interactions between different modules or components of the BBMS. Test cases focus on verifying data integrity, communication protocols, and interoperability between modules

- **System Testing:**

  System testing validates the BBMS as a complete software system, including its user interface, business logic, and database functionality. Functional testing, usability testing, and performance testing are conducted to ensure that the system meets all specified requirements and user expectations.

- **Acceptance Testing:**

  Acceptance testing involves validating the BBMS against predefined acceptance criteria and user requirements. Stakeholders, including administrators, donors, and patients, participate in acceptance testing to verify that the system meets their needs and expectations.

- **Security Testing:**

  Security testing evaluates the BBMS's resilience to potential security threats, such as unauthorized access, data breaches, and malicious attacks. Measures such as encryption, access controls, and secure authentication mechanisms are implemented to safeguard sensitive data and protect against security risks.

In conclusion, comprehensive testing is essential to validate the functionality, reliability, and security of the BBMS. By employing a combination of testing methodologies and techniques, potential issues can be identified and addressed early in the development lifecycle, ensuring that the BBMS meets user requirements and delivers a seamless and reliable user experience.

CHAPTER 6

RESULT ANALYSIS AND SCREENSHOTS

Home Page:

Figure 6.1: Home Page

Admin Page:

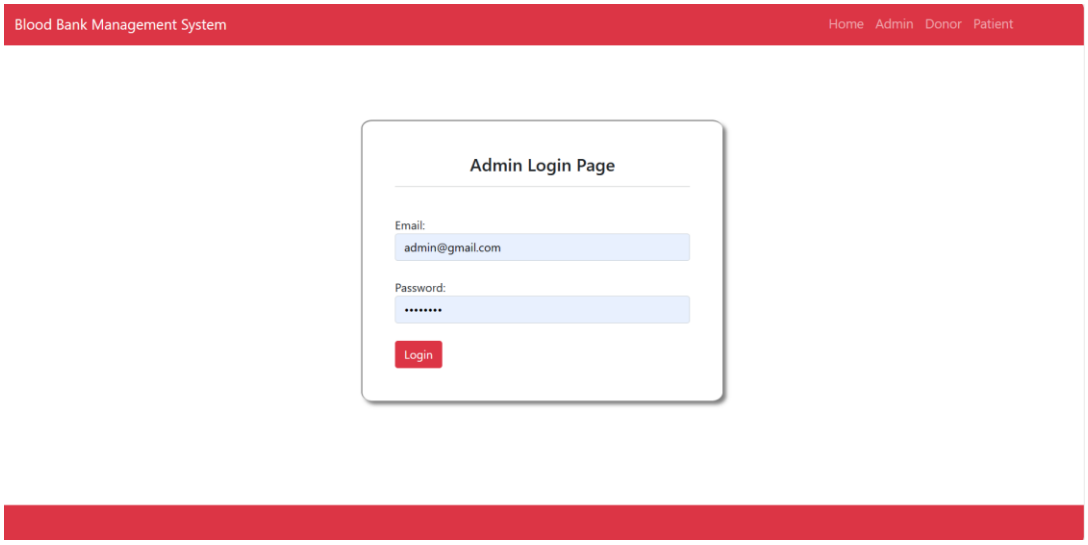


Figure 6.2.1: Admin Login Page

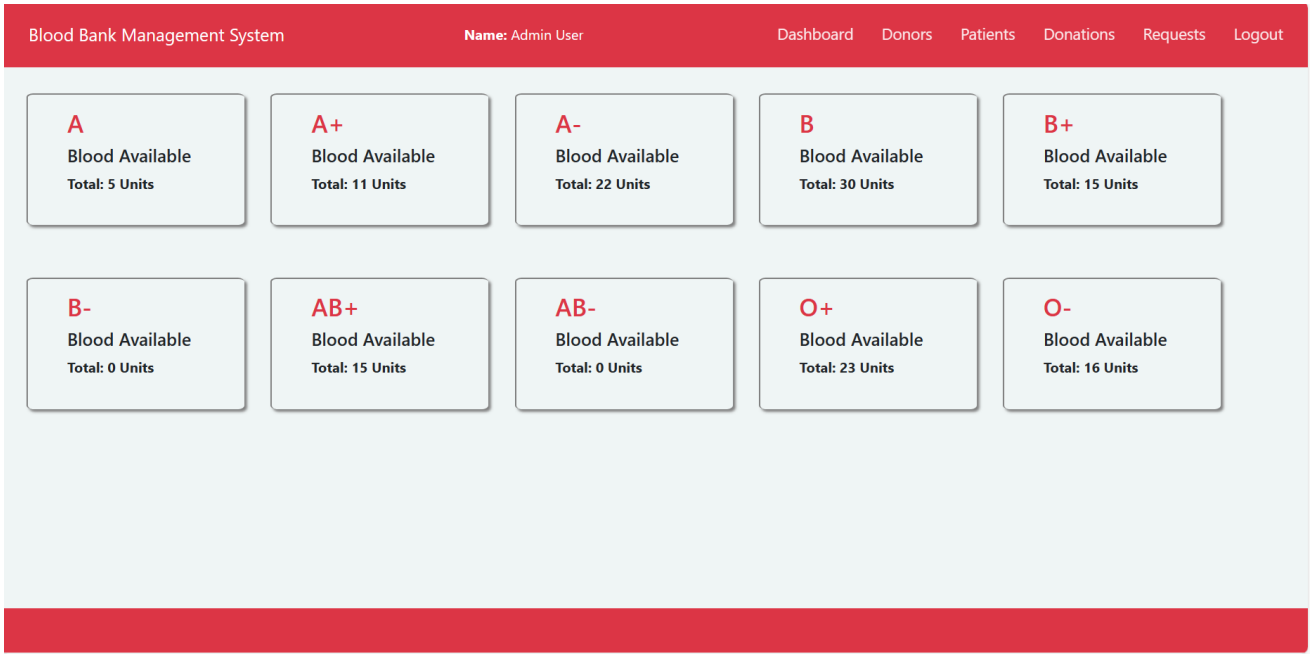


Figure 6.2.2: Admin Dashboard

Donor Page:

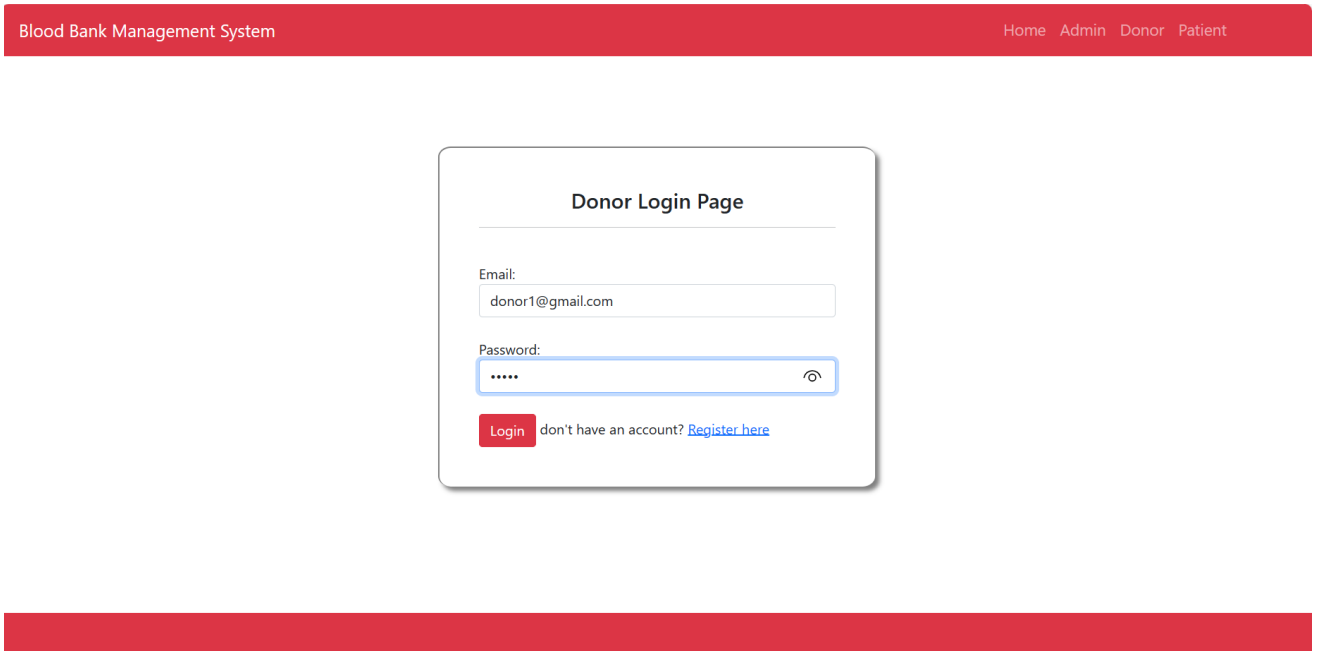


Fig 6.3.1: Donor Login Page

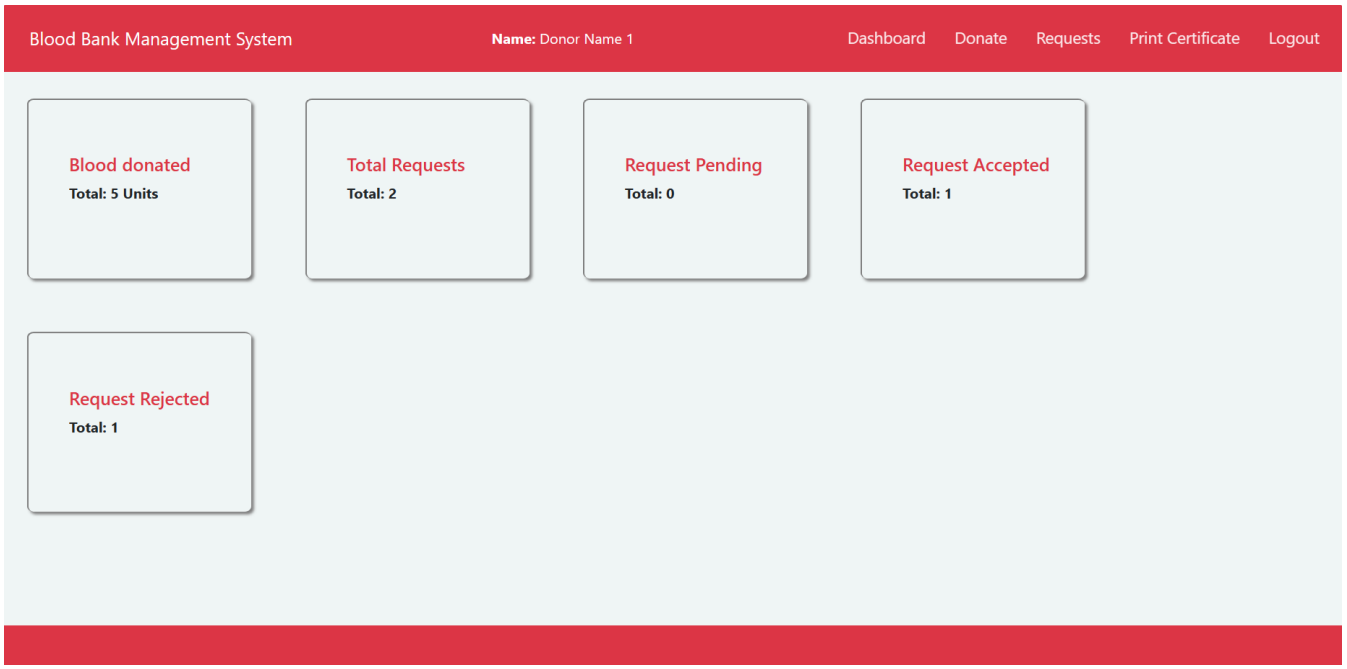


Figure 6.3.2: Donor Dashboard

Patient Page :

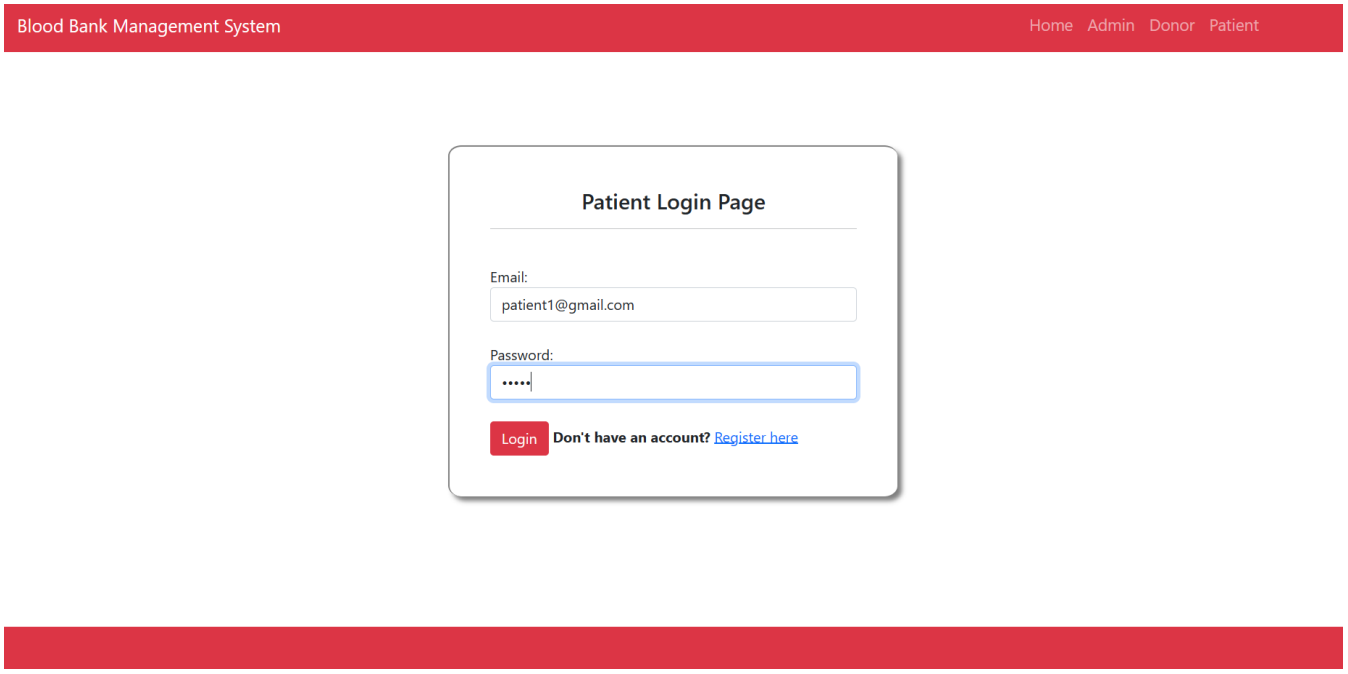


Figure 6.4.1: Patient Login Page

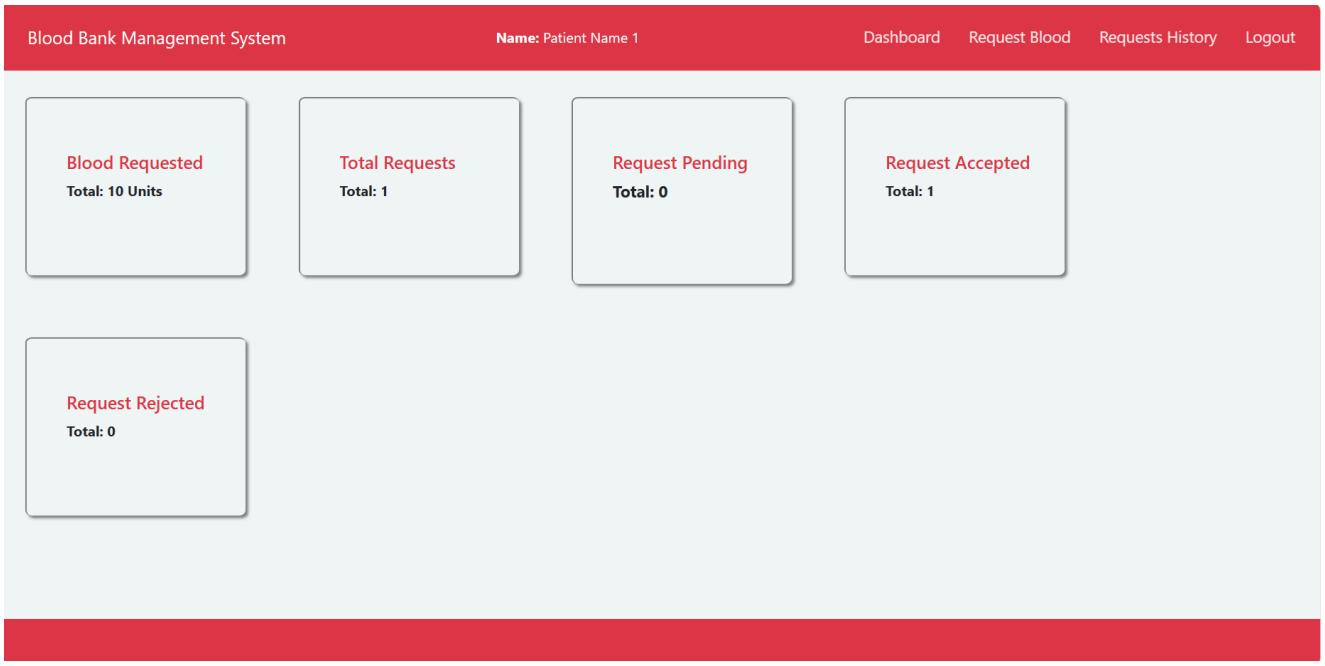


Figure 6.4.2: Patient Dashboard

CONCLUSION AND FUTURE ENHANCEMENTS

With the theoretical inclination of our syllabus, it becomes very essential to take the utmost advantage of any opportunity of gaining practical experience that comes along. The building blocks of this Major Project "Blood Bank Management System" was one of these opportunities. It gave us the requisite practical knowledge to supplement already taught theoretical concepts thus making us more competent as a computer engineer. The project from a personal point of view also helped us in understanding many aspects.

Future Enhancements:

- **Mobile Application Integration:** Developing a mobile application for the BBMS would enhance accessibility and engagement, allowing donors to conveniently schedule donations and receive updates on their donation history.
- **Predictive Analytics Implementation:** Integrating predictive analytics capabilities would enable blood banks to anticipate demand, optimize inventory levels, and mitigate shortages proactively.
- **IoT-enabled Blood Tracking:** Utilizing Internet of Things (IoT) technology to track blood units in real-time could enhance traceability and ensure the integrity of blood products throughout the supply chain.

By embracing these future enhancements, the BBMS will continue to evolve as a cutting-edge solution for blood bank management, contributing to improved patient care and healthcare efficiency.

BIBLIOGRAPHY

- **PHP & MySQL: Novice to Ninja, 7th Edition by Tom Butler and Kevin Yank**
- **W3Schools PHP Tutorial**
- **Bootstrap Documentation (Official)**
- **Bootstrap 5 Tutorial**
- **"XAMPP QuickStart Guide" By Fabian Grutschus**
- **MySQL Tutorial**
- **YouTube Video:** https://youtu.be/7S_tz1z_5bA?si=-JrapsFfrFzI_yvQ
- **Course**: **Scaler DBMS course**

Personal Details:

- **NAME: SHIVAM ANAND**

  USN: 1DT21CS143

  SEMESTER: 5TH SEM, 'C' SECTION

  COLLEGE: DAYANANDA SAGAR ACADEMY OF TECHNOLOGY AND MANAGEMENT

  EMAIL-ID: shivamanand37447@gmail.com

- **NAME: SHREYA RAI**

  USN: 1DT20CS144

  SEMESTER: 5TH SEM, 'C' SECTION

  COLLEGE: DAYANANDA SAGAR ACADEMY OF TECHNOLOGY AND MANAGEMENT

  EMAIL-ID: shreyarai.0910@gmail.com

- **NAME: VISHAL KM**

  USN: 1DT20CS182

  SEMESTER: 5TH SEM, 'C' SECTION

  COLLEGE: DAYANANDA SAGAR ACADEMY OF TECHNOLOGY AND MANAGEMENT

  EMAIL-ID: vishalkm6666@gmail.com

- **NAME: SUMEET PATIL**

  USN: 1DT20CS187

  SEMESTER: 5TH SEM, 'C' SECTION

  COLLEGE: DAYANANDA SAGAR ACADEMY OF TECHNOLOGY AND MANAGEMENT

  EMAIL-ID: sumeetpatil8384@gmail.com