**TITLE**

**Blood Bank Donation System**

**A capstone project report**

**Submitted to**

**Saveetha School of Engineering**

**INTERNET PROGRAMMING FOR WEB SERVICES**

**(CSA-4309)**

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**Saveetha Institute of Medical & Technical Sciences**

**Chennai**

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**DECLARATION**

We, Narendra, Murali, Harsha, students of Bachelor of Engineering in the Department of Computer Science and Engineering, Saveetha Institute of Medical and Technical Sciences, Saveetha School of Engineering, Chennai, hereby declare that the work presented in this Capstone Project Work entitled Blood Bank Donation System is the outcome of our own bonafide work and is correct to the best of our knowledge and this work has been undertaken taking care of Engineering Ethics.

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**Date:** 12/11/2024

**Place:** Chennai

**CERTIFICATE**

This is to certify that the project entitled “Blood Bank Donation System” submitted by Narendra, Murali, Harsha has been carried out under my supervision. The project has been submitted as per the requirements in the current semester of B.E. Computer Science and Engineering.

**Supervisor**

**Dr. K. Jayasakthi Velmurugan**

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**INTRODUCTION**

A Blood Bank Donation System is a comprehensive digital platform designed to streamline and enhance the management of blood donation, helping connect donors, recipients, and healthcare facilities in a more efficient way. Through this system, individuals can register as blood donors, providing essential details like their blood type, health status, and contact information. This enables blood banks to maintain an organized database of donors, allowing them to reach out to suitable donors whenever there is a need for a specific blood type. The system also plays a crucial role in managing blood inventory, keeping track of available stock levels, ensuring safe storage, and monitoring expiration dates. This level of oversight prevents blood shortages and minimizes wastage, ensuring that critical resources are used effectively.

The Blood Bank Donation System also facilitates blood requests from hospitals, clinics, or patients, making it easier to match them with available blood types and ensuring a faster response during emergencies. With its integrated scheduling feature, donors can conveniently set appointments for donation, which reduces wait times and helps improve their overall experience. Additionally, the system can send notifications and reminders to donors regarding their eligibility for the next donation and inform them about urgent needs for specific blood types.

A Blood Bank Donation System streamlines blood donation and management by connecting donors, recipients, and healthcare facilities. It maintains an organized donor database, tracks blood inventory, and processes blood requests efficiently, ensuring a timely response in emergencies. Donors can schedule appointments, view donation history, and receive reminders, while hospitals gain real-time access to blood stocks. This system enhances transparency, trust, and community engagement by promoting awareness about blood donation. It ensures that blood is readily available and managed effectively, ultimately saving lives and improving healthcare outcomes.

**OBJECTIVES**

To develop a streamlined and efficient Blood Bank Donation System that facilitates the donation, collection, storage, and distribution of blood and blood components. The system should aim to improve the accessibility, transparency, and reliability of blood services, ensuring that hospitals and patients in need receive timely and safe blood supplies.

### **Objectives:**

1. **Increase Blood Donation Awareness and Accessibility:**
   * Promote blood donation by providing easy registration and scheduling options for donors.
   * Use the platform to raise awareness about the importance of blood donation and the types of blood components in demand.
2. **Simplify the Blood Donation Process:**
   * Implement an easy-to-use interface for potential donors to register, schedule appointments, and receive reminders for their donation schedules.
   * Allow donors to view their donation history and eligibility status based on previous donations.
3. **Ensure Quality Control and Safety of Blood Supply:**
   * Track and monitor blood donations, ensuring that blood is collected, tested, and stored under regulated conditions.
   * Integrate blood testing protocols and quality checks to ensure that only safe, certified blood reaches patients in need.
4. **Optimize Blood Distribution:**
   * Develop a system that matches hospital and patient needs with available blood types, ensuring prompt and accurate distribution.

These aims and objectives should guide the development and management of a comprehensive and user-friendly Blood Bank Donation System that effectively meets the needs of donors, healthcare providers, and patients.

**EXISTING SYSTEM**

Traditional blood bank systems or basic digital blood bank databases often operate at local or regional levels and may include both manual processes and simple digital record-keeping. Key components are:

1. **Manual Registration and Record-Keeping:**
   * Donors are often registered manually or through basic electronic records without integration into a larger, centralized system.
   * Blood donation records are maintained in separate databases that may not be interconnected, leading to inefficiencies in data management.
2. **Limited Inventory Tracking:**
   * Blood banks track inventory using basic spreadsheets or localized software, which might not provide real-time data on blood stock levels across multiple locations.
   * Manual checks or phone calls are often required to confirm availability of specific blood types, which can slow down the process.
3. **Decentralized Blood Distribution:**
   * Blood requests are often handled by local blood banks, which may lack access to a wider network of available blood supply, limiting the scope of distribution.
   * Transferring blood between blood banks for emergencies can be delayed due to lack of centralized coordination.
4. **Minimal Online Presence:**
   * Many traditional blood banks have limited or no online presence, reducing visibility for potential donors and making it harder to reach younger, tech-savvy audiences.
   * Donors often have limited options to register online or get reminders for upcoming donation drives.

### **Drawbacks :**

* Inefficiency and Delays.
* Poor Donor Engagement and Retention.
* Inventory Imbalances and Waste.
* Limited Accessibility and Awareness.

**PROPOSED SYSTEM**

The proposed Blood Bank Donation System is a centralized, automated, and user-friendly digital platform designed to streamline blood donation processes, enhance donor engagement, and optimize blood inventory management across multiple locations. This system leverages modern technologies, including web and mobile applications, data analytics, and real-time communication tools, to address the limitations of existing systems.

#### **Key Features :**

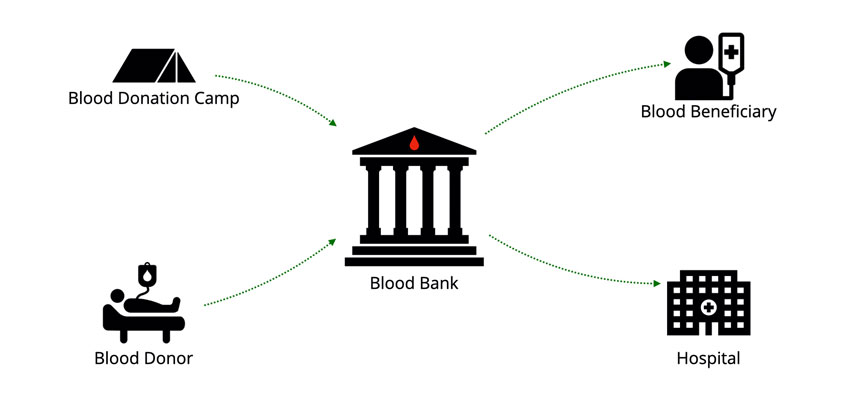
* Centralized Database and Real-Time Inventory Management.
* Online Donor Registration and Profile Management.
* Automated Appointment Scheduling and Reminders.
* Emergency and Targeted Notifications.
* Geolocation and Proximity Matching.
* Enhanced Blood Safety and Quality Control.
* Comprehensive Reporting and Analytics.
* Privacy and Data Security.
* Integrated Communication Channels.
* Interoperability with Health Systems.

### **Benefits :**

* Improved Efficiency and Responsiveness.
* Enhanced Donor Engagement and Retention.
* Reduction in Blood Wastage.
* Increased Accessibility.
* Greater Data Accuracy and Security.

The proposed system is designed to create a modernized, efficient, and reliable blood donation ecosystem, enhancing the availability of safe blood supplies and ultimately saving more lives.

**BLOCK DIAGRAM**

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### **Summary of Flow:**

* Blood Donors and Donation Camps contribute blood to the Blood Bank.
* The Blood Bank manages and processes the blood, ensuring it meets quality standards.
* The blood is then distributed to Hospitals or directly to Blood Beneficiaries in need.

This diagram shows the interconnections between donors, the Blood Bank, and recipients, highlighting the process of blood collection, storage, and distribution in a simplified manner.

**TECHNIQUES**

“Frontend and Backend” are the two primary parts of web development, each with distinct roles in building a web application.

### **Frontend**

The frontend is the user-facing part of a web application—the part that users directly interact with, also known as the "client-side." It involves the layout, design, and interactivity of the application. Key aspects are:

**Languages:**

1. **HTML (HyperText Markup Language)**: Defines the structure of the webpage.
2. **CSS (Cascading Style Sheets)**: Styles the HTML elements, controlling layout, colors, fonts, etc.
3. **JavaScript**: Adds interactivity, like form validation, animations, and responsive elements.

### **Backend**

The backend is the server-side part of the application, responsible for handling data, business logic, and server-related operations.

**Languages :**

1. Common backend languages include Java, Python, PHP, Ruby, Node.js.
2. **Frameworks:** Backend frameworks streamline development. Examples include Django for Python, Express.js for Node.js, and Spring Boot for Java.
3. **Databases:** Databases store and manage application data, such as user profiles and content. Examples include MySQL, PostgreSQL, MongoDB, and SQLite.

**CODING:**

**Index.html**

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Blood Management System</title>

<style>

\* {

margin: 0;

padding: 0;

box-sizing: border-box;

font-family: Arial, sans-serif;

}

body {

display: flex;

align-items: center;

justify-content: center;

height: 100vh;

background: url(blood.jpg) no-repeat center center fixed;

background-size: cover; /\* Ensures image covers the whole background \*/

}

.container {

text-align: center;

background-color: rgba(255, 255, 255, 0.9); /\* Slightly transparent white background \*/

padding: 2rem;

border-radius: 10px;

box-shadow: 0 4px 8px rgba(0, 0, 0, 0.1);

width: 300px;

}

h1 {

margin-bottom: 2rem;

font-size: 1.5rem;

color: #333;

}

button {

display: inline-block;

padding: 0.5rem 1.5rem;

margin: 0.5rem;

border: none;

border-radius: 5px;

font-size: 1rem;

color: #fff;

background-color: #007bff;

cursor: pointer;

transition: background-color 0.3s ease;

text-transform: none; /\* Prevent capitalization \*/

text-decoration: none; /\* Remove underline \*/

}

button:hover {

background-color: #0056b3;

}

</style>

</head>

<body>

<div class="container">

<h1>Welcome to Blood Management Information System</h1>

<button onclick="window.location.href='login.html'">donor</button>

<button onclick="window.location.href='hospital.html'">About</button>

</div>

</body>

</html>

**su.php**

<?php

$name = filter\_input(INPUT\_POST, 'name');

$username = filter\_input(INPUT\_POST, 'username');

$password = filter\_input(INPUT\_POST, 'password');

$confirm\_password = filter\_input(INPUT\_POST, 'confirm-password');

$bloodgroup = filter\_input(INPUT\_POST, 'bloodgroup');

if (!empty($username)) {

if (!empty($bloodgroup)) {

if (!empty($password)) {

if (!empty($name)) {

if ($password === $confirm\_password) {

$host = "localhost";

$dbusername = "root";

$dbpassword = "";

$dbname = "travel";

$conn = new mysqli($host, $dbusername, $dbpassword, $dbname);

if ($conn->connect\_error) {

die("Connection failed: " . $conn->connect\_error);

} else {

$hashed\_password = password\_hash($password, PASSWORD\_DEFAULT);

$stmt = $conn->prepare("INSERT INTO users1 (name, username, password, bloodgroup) VALUES (?, ?, ?, ?)");

$stmt->bind\_param("ssss", $name, $username, $hashed\_password, $bloodgroup);

if ($stmt->execute()) {

echo "New record inserted successfully"

} else {

echo "Error: " . $stmt->error;

}

$stmt->close();

$conn->close();

}

} else {

echo "Passwords do not match";

}

} else {

echo "Name should not be empty";

} } else {

echo "Password should not be empty";

}

} else {

echo "Blood group should not be empty";

}

} else {

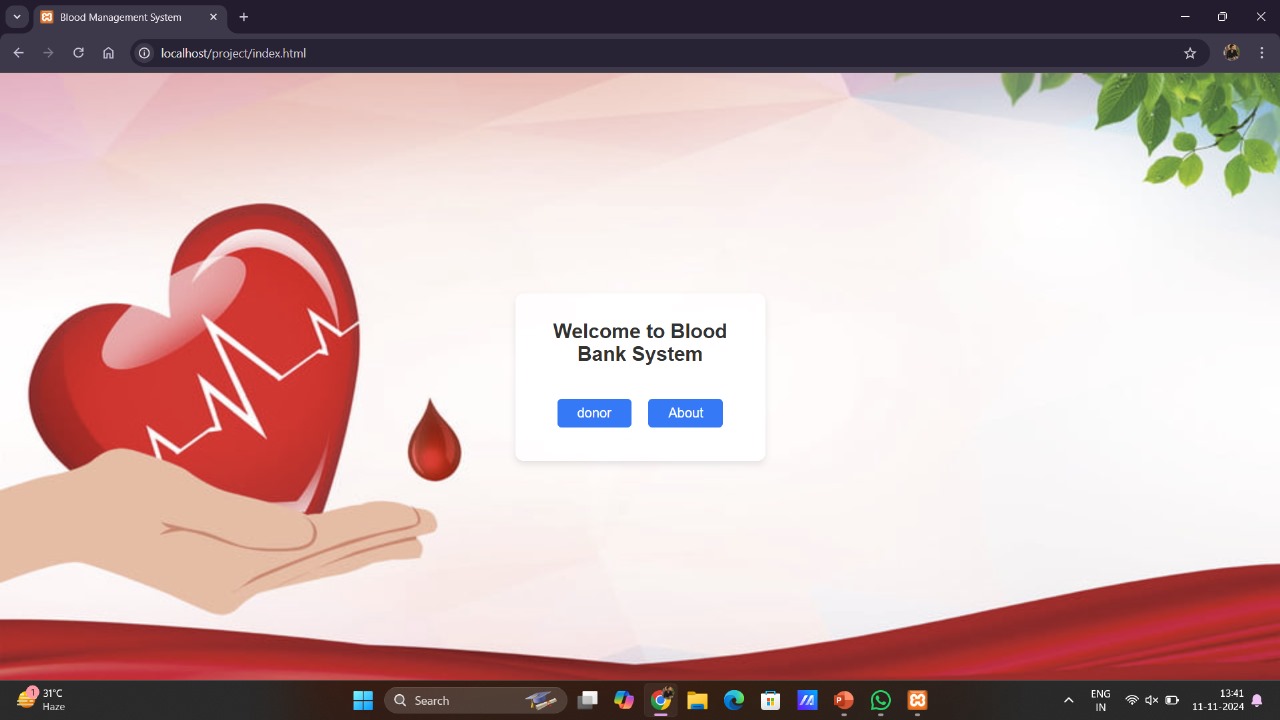
echo "Username should not be empty";

}

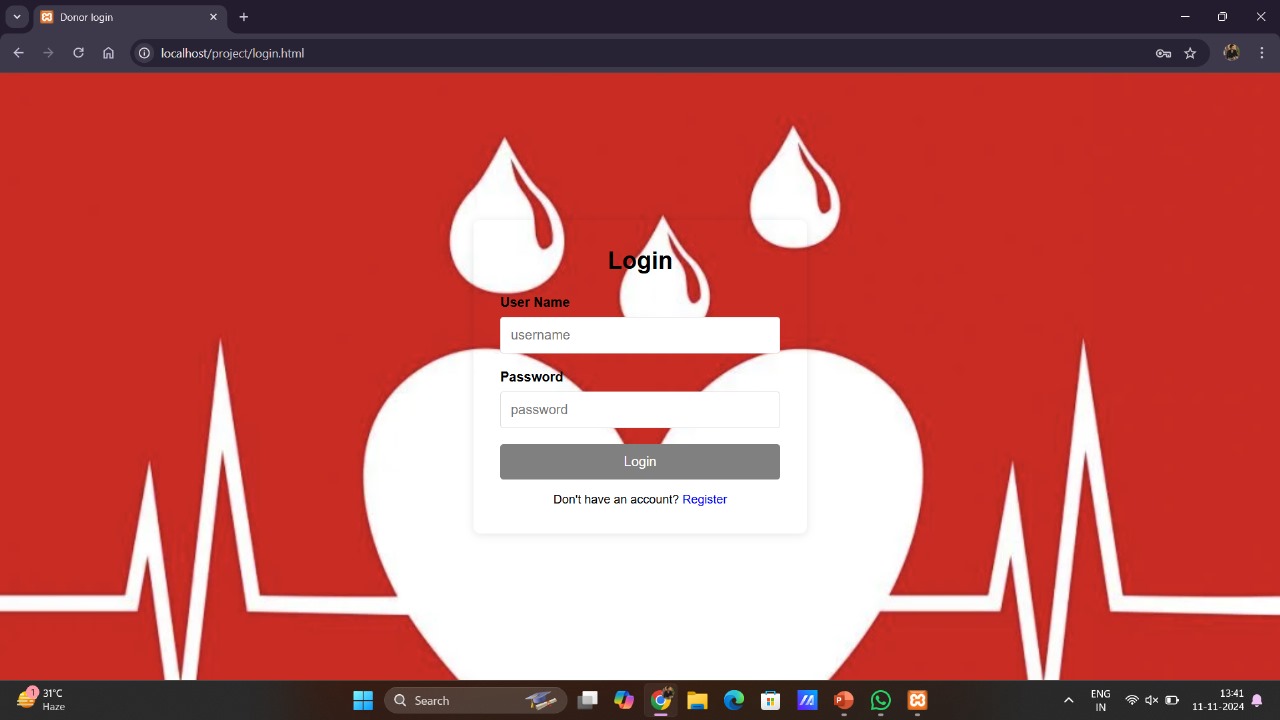
?>

**RESULTS**

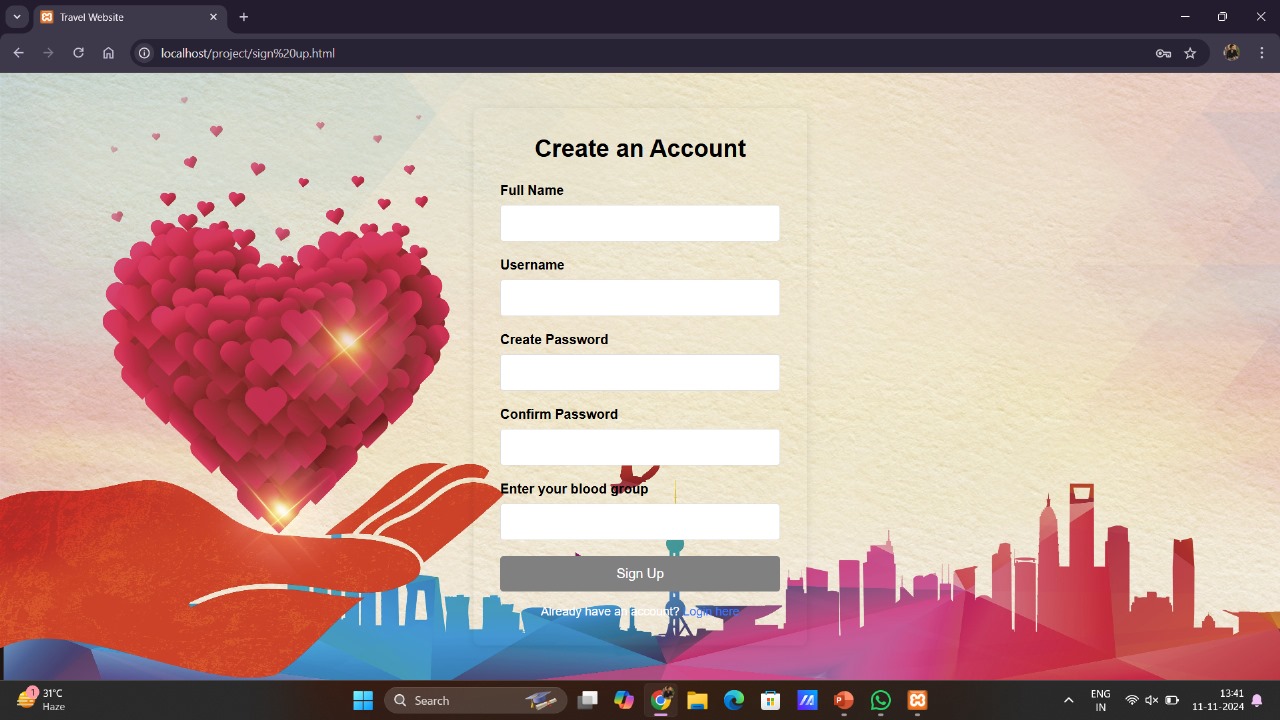
**1)Home page:**

****

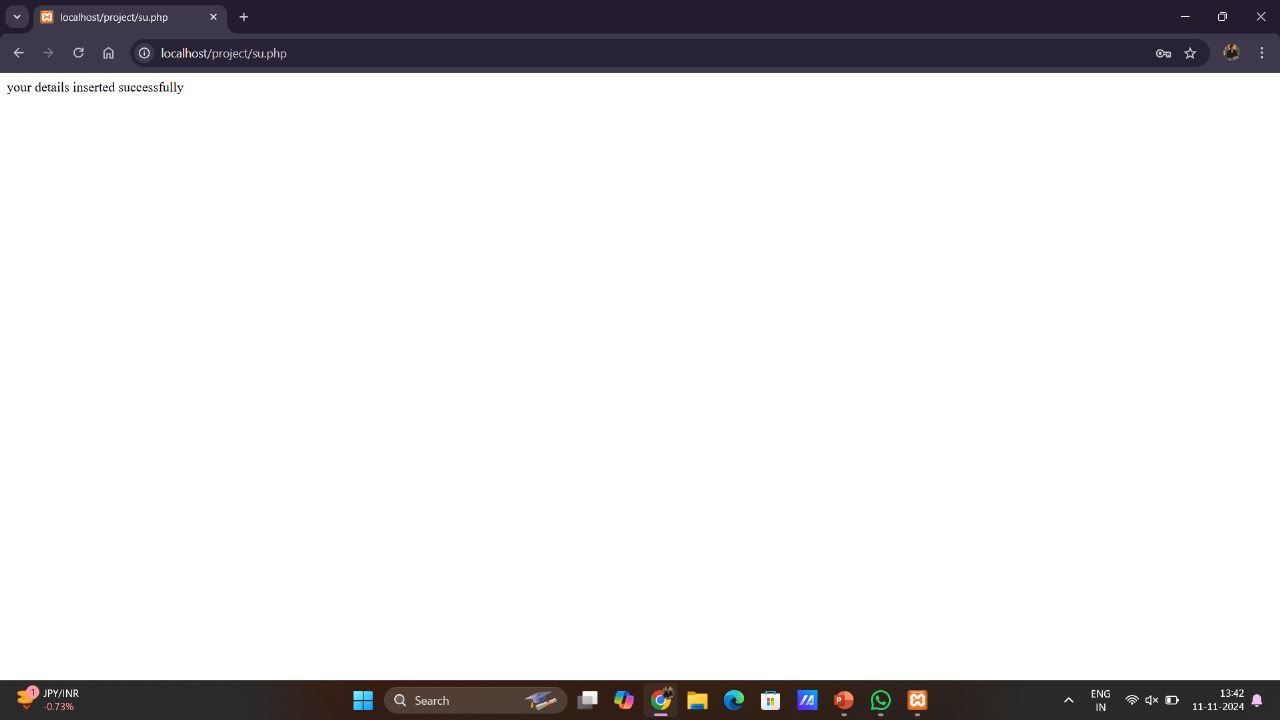
**2)Login Page:**

****

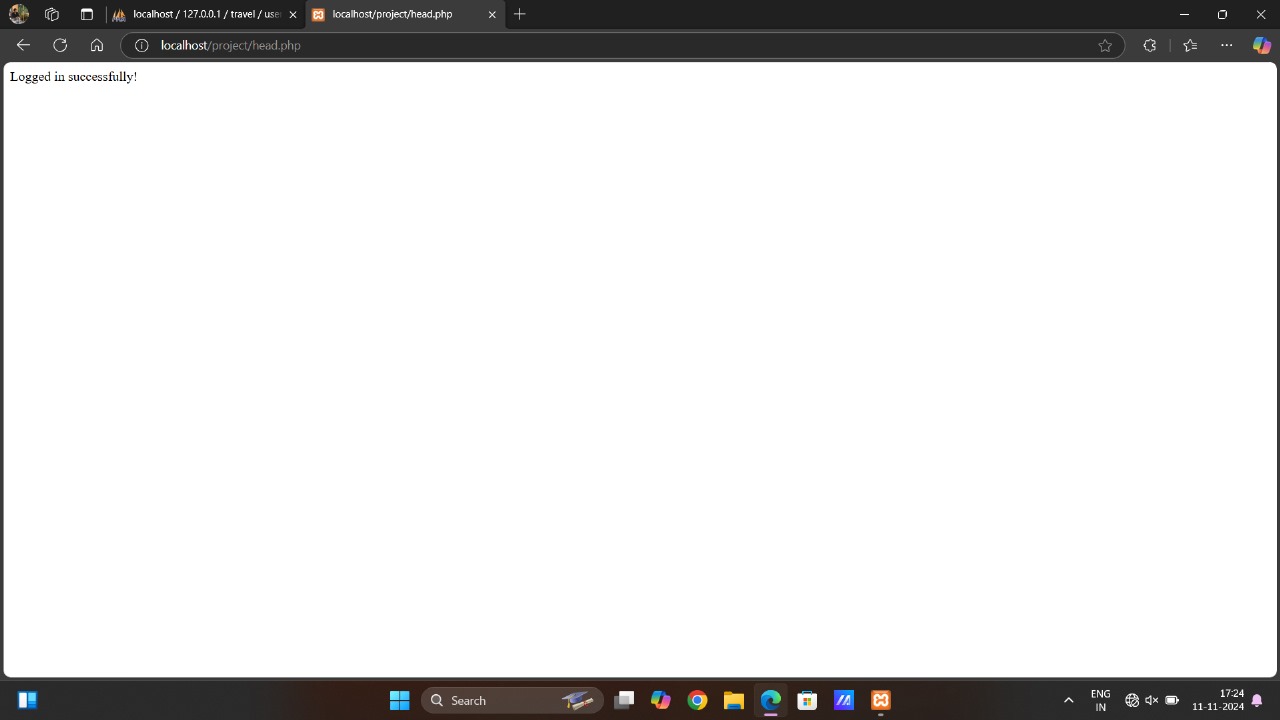
**3)Register Page:**

****

**4)Donor Details Inserted Successfully page:**

****

**5)Login Successfully Page:**

****

**CONCLUSION**

The Blood Bank Donation System is a crucial tool that enhances the efficiency, accessibility, and reliability of blood donation and distribution. By automating key processes—such as donor registration, appointment scheduling, inventory management, and real-time notifications—the system addresses the limitations of traditional manual methods. It not only ensures a steady supply of safe blood for hospitals and patients but also encourages more people to donate regularly through convenient online platforms and timely reminders. With this system in place, blood banks can better manage inventory, reduce wastage, and respond quickly to emergencies, ultimately saving more lives and improving healthcare outcomes.

**FUTURE ENHANCEMENTS**

* AI-Powered Demand Prediction.
* Health Monitoring.
* Blockchain for Blood Traceability.
* Personalized Donor Experience.
* Donor Matching.
* Pre-Donation Screening.
* Post-Donation Support.
* Social Media Integration.
* Feedback Mechanisms.
* Advanced Donor Health Monitoring.
* Enhanced Mobile Application Features.
* Interoperability with Hospital Systems.
* AI Chatbot for Donor Support.
* Emergency Response Integration.
* In-App Donation Certificates.

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