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**This project report has been submitted in fulfillment of the
requirements for the degree of Bachelor of Science in Information
Technology & Management**

Approval

This project titled on “**DonateLife**”, submitted by “**Md Sadnan Sadad Shouruv, 211-51-039**”, to the Department of Information Technology & Management, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Information Technology & Management, and approval as to its style and contents.

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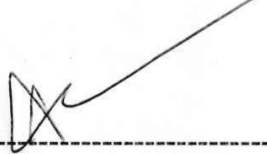
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DECLARATION

I hereby declare that I have done this project under the supervision of Prof. Dr. Bimal Chandra Das Associate Dean Department of Information Technology & Management (ITM), Daffodil International University. It also declares that neither this project nor any part of this has been submitted elsewhere for award of any degree.

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The Donate Life project is the result of collective efforts, and I hope it will contribute meaningfully toward improving lives and promoting a spirit of generosity.

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CHAPTER 1: INTRODUCTION

1.1 Background

Creating a blood donation website addresses a critical need in healthcare by facilitating connections between donors and recipients. Blood is an essential resource in medical emergencies, surgeries, and for patients with chronic illnesses like cancer, where regular transfusions are required. Despite advancements in medicine, there is no substitute for human blood, making donations crucial.

The idea of a blood donation website stems from the need to make the donation process more accessible and efficient. Traditional blood banks often face shortages, and finding a compatible donor can be time-consuming. A dedicated website can streamline this by enabling potential donors to register, list their blood types, and indicate their availability. Similarly, recipients or healthcare providers can quickly search for donors based on blood type, location, and urgency.

The website would also serve as an educational platform, providing information on the importance of regular donations, the donation process, and eligibility criteria. By integrating features like appointment scheduling, and location-based searches, the platform can enhance the overall efficiency of blood donation drives and ensure that those in need receive timely help. This initiative not only saves lives but also builds a community committed to supporting healthcare needs.

1.2 Motivation

The motivation for this project arises from personal, societal, and technological perspectives. Personal stories of patients waiting in vain for transplants highlight the urgent need for improvement. The growing availability of digital tools presents a unique opportunity to revolutionize donation systems and save lives.

Key motivating factors:

1. **Timeliness:** A delay of even a few hours can cost a life. "Donate Life" emphasizes real-time matching and communication.
2. **Empathy:** Providing a platform that encourages compassion and participation in lifesaving efforts.
3. **Technological Accessibility:** Leveraging the accessibility of the internet to reach global users and simplify processes.
4. **Critical Resource Shortage:** The absence of a centralized and reliable platform for connecting donors to recipients exacerbates resource shortages.
5. **Complexity in Existing Systems:** Current systems often involve bureaucratic hurdles, outdated processes, and inaccessible interfaces.
6. **Potential Impact:** By creating an efficient system, we can save countless lives and create a sustainable model for future resource allocation.

1.3 Objectives

The primary objectives of the Donate Life project are:

1. To create a web-based platform where users can register as donors or recipients.

2. To enable seamless and real-time matching between donors and recipients based on predefined criteria such as location, type of resource, and urgency.
3. To provide robust data security measures to protect sensitive user information.
4. To design an interface that is responsive, inclusive, and accessible to all users, regardless of their technical proficiency.
5. To develop a scalable backend capable of handling high user traffic and expanding functionalities in the future..

1.4 Expected Outcomes

Upon successful completion of the project, the following outcomes are anticipated:

1. A fully functional web application connecting donors and recipients.
2. Real-time notifications for matches to ensure timely interventions.
3. An intuitive user interface catering to diverse user needs.
4. Scalable infrastructure ready for feature expansions and global deployment.
5. Tangible social impact by saving lives and enhancing resource allocation efficiency.

1.5 Report Layout

This report is organized into several key sections:

1. **Introduction:** Lays the foundation of the project, discussing its background, motivation, objectives, and structure.
2. **Background:** Explores the project's context, including comparative studies, scope, and challenges.

3. **Requirement Specification:** Details the technical and user requirements, supported by diagrams and analyses.
4. **Design Specification:** Outlines the architectural and interface design.
5. **Implementation and Testing:** Provides an in-depth look into development processes, testing methodologies, and results.
6. **Conclusion and Future Scope:** Summarizes findings and identifies opportunities for future improvements.
7. **Appendix:** Includes additional resources such as diagrams and reflections.
8. **References:** Lists all sources and materials used in the project.

1.6 Comparative Studies

To understand the significance of this project, a comparative analysis of existing systems was undertaken. Current platforms have notable limitations:

- **Accessibility:** Most systems lack mobile-friendly designs and intuitive interfaces.
- **Data Security:** Reports of data breaches and misuse discourage user participation.
- **Matching Efficiency:** Existing algorithms often fail to prioritize urgency or compatibility effectively.

In contrast, **Donate Life** offers:

1. A modern interface built with React.js, ensuring seamless navigation.
2. Secure data handling through encrypted connections and robust backend technologies like MongoDB and Express.js.

3. Real-time, AI-augmented matching systems to prioritize urgent needs.

1.7 Scope of the Project

The scope of **Donate Life** is clearly defined:

- To address inefficiencies in donor-recipient matchmaking.
- To provide end-to-end support, from user registration to successful donation.
- To ensure the system's scalability for future integrations like AI-based analytics and internationalization.

The project, however, acknowledges its limitations:

1. Initial deployment may focus on a limited geographic area.
2. Dependency on user adoption for large-scale success.

1.8 Challenges

Several challenges were identified and addressed during the project lifecycle:

1. **Data Security:** Protecting sensitive personal and medical information is paramount.
2. **Algorithm Complexity:** Designing efficient matching algorithms to handle diverse variables like blood type, organ compatibility, and geographical constraints.
3. **User Adoption:** Encouraging participation in a platform that requires personal data submission.

CHAPTER 2 : REQUIREMENT SPECIFICATION

2.1 Business Process Modeling :

The **Donate Life** platform operates through the following key phases:

1. **Registration and Verification:** Users register as donors or recipients, providing necessary details.
2. **Profile Management:** Users can update their information, including resource availability or needs.
3. **Matching:** The system identifies compatible pairs using predefined algorithms.
4. **Communication:** Secure channels enable donors and recipients to coordinate directly.

2.2 Stakeholder List:

1. Admin

- Manages the platform, including user registration, data security, and overall operations.
- Monitors donor activity, manages content, and ensures compliance with privacy standards.

2. Blood Donors

- Users who register on the platform, providing information about their blood type, location, and availability.
- Can update their donation availability and schedule appointments.

3. Recipients

- Individuals seek blood donors based on specific requirements like blood type and location.
- Can search for donors, book appointments, and contact donors after providing their details.

2.3 Functional Requirements:

1. User Registration and Profile Management

- Blood donors can register and create profiles with details such as name, blood type, location, and contact information.
- Donors can update their availability for donation.

2. Donor Search and Matching

- Recipients can search for donors based on blood type, location, and availability.
- Search results should display a list of compatible donors with the option to book and contact them.

3. Appointment Scheduling

- Donors can set and update their availability, allowing recipients to schedule appointments based on this information.

4. Contact and Booking

- Registered users can contact donors after providing necessary details.
- The platform should securely handle the exchange of contact information.

5. Educational Content

- The website will provide information about blood donation, including the importance, process, eligibility, and impact.

6. Community Features

- The platform will encourage regular donations through incentives, recognition, and support for committed donors.

7. Admin Dashboard

- Admins can manage user data, monitor activity, update content, and ensure compliance with privacy policies.

2.4 Non-Functional Requirements:

1. Usability

- The platform should have a user-friendly interface with easy navigation and accessibility for all users, including those with disabilities.

2. Performance

- The system should handle multiple users simultaneously, ensuring quick search and booking processes without delays.

3. Security

- Robust security measures must be in place to protect personal and medical information, including encryption, secure login, and compliance with data protection regulations.

4. Reliability

- The platform should be reliable, with minimal downtime and regular backups to prevent data loss.

5. Scalability

- The system should be scalable to accommodate increasing numbers of users, donors, and recipients over time.

6. Compatibility

- The website should be compatible with various devices and browsers, providing a consistent experience across platforms.

7. Privacy

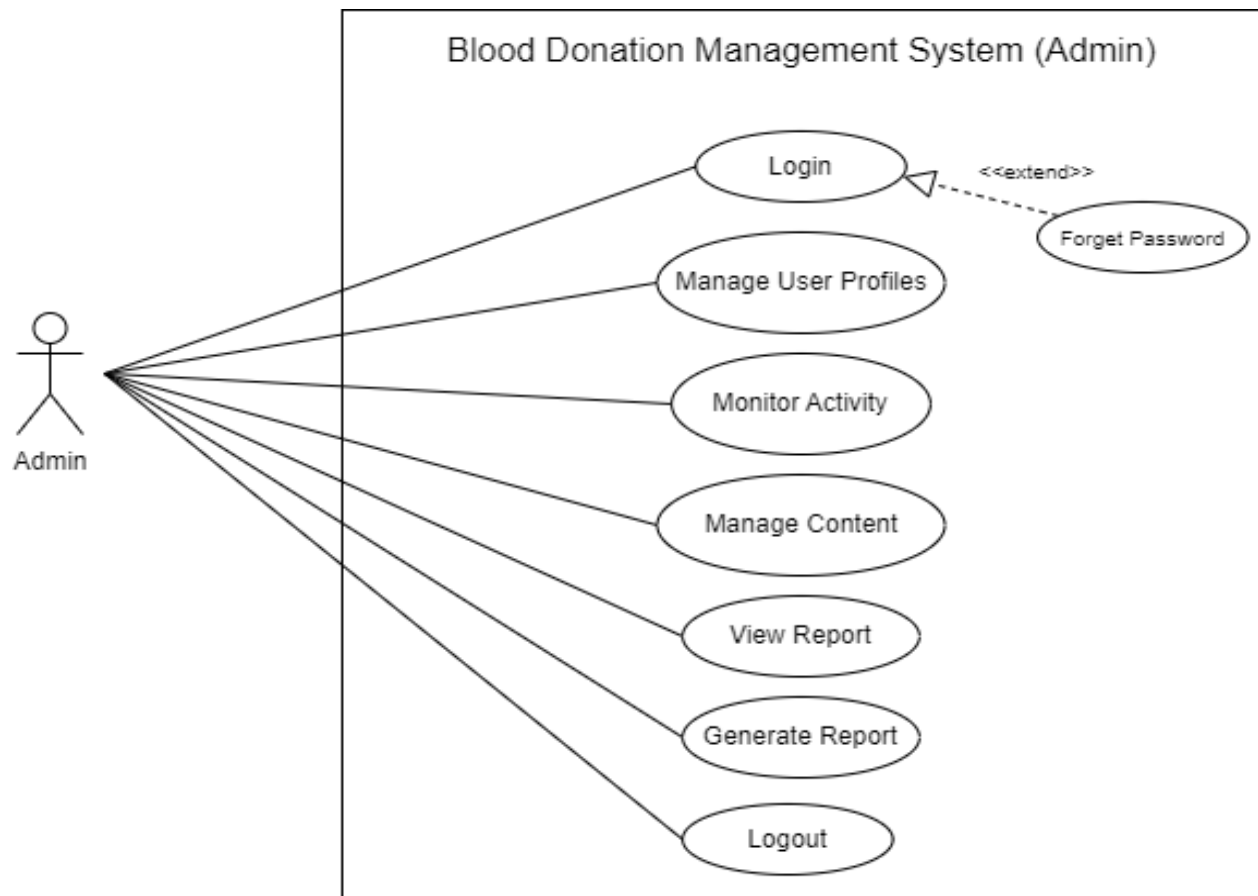
- Strict privacy controls must be implemented to ensure that donor and recipient information is kept confidential and used only for its intended purpose.

2.5 Use case Diagram :

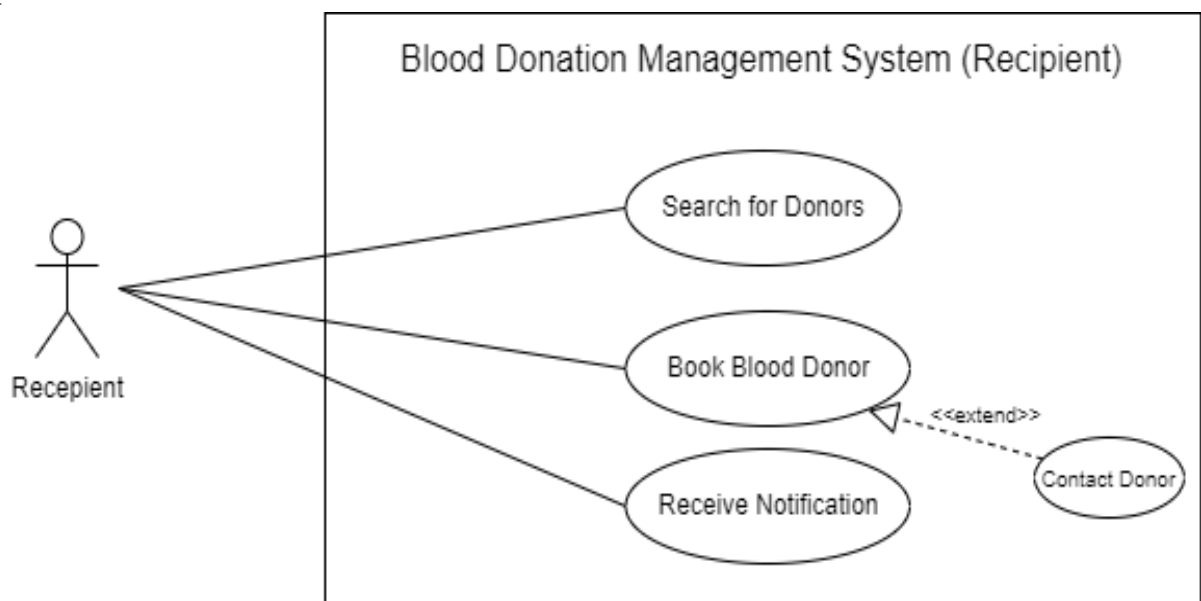
Actors:

1. Admin
2. Blood Donor
3. Recipient

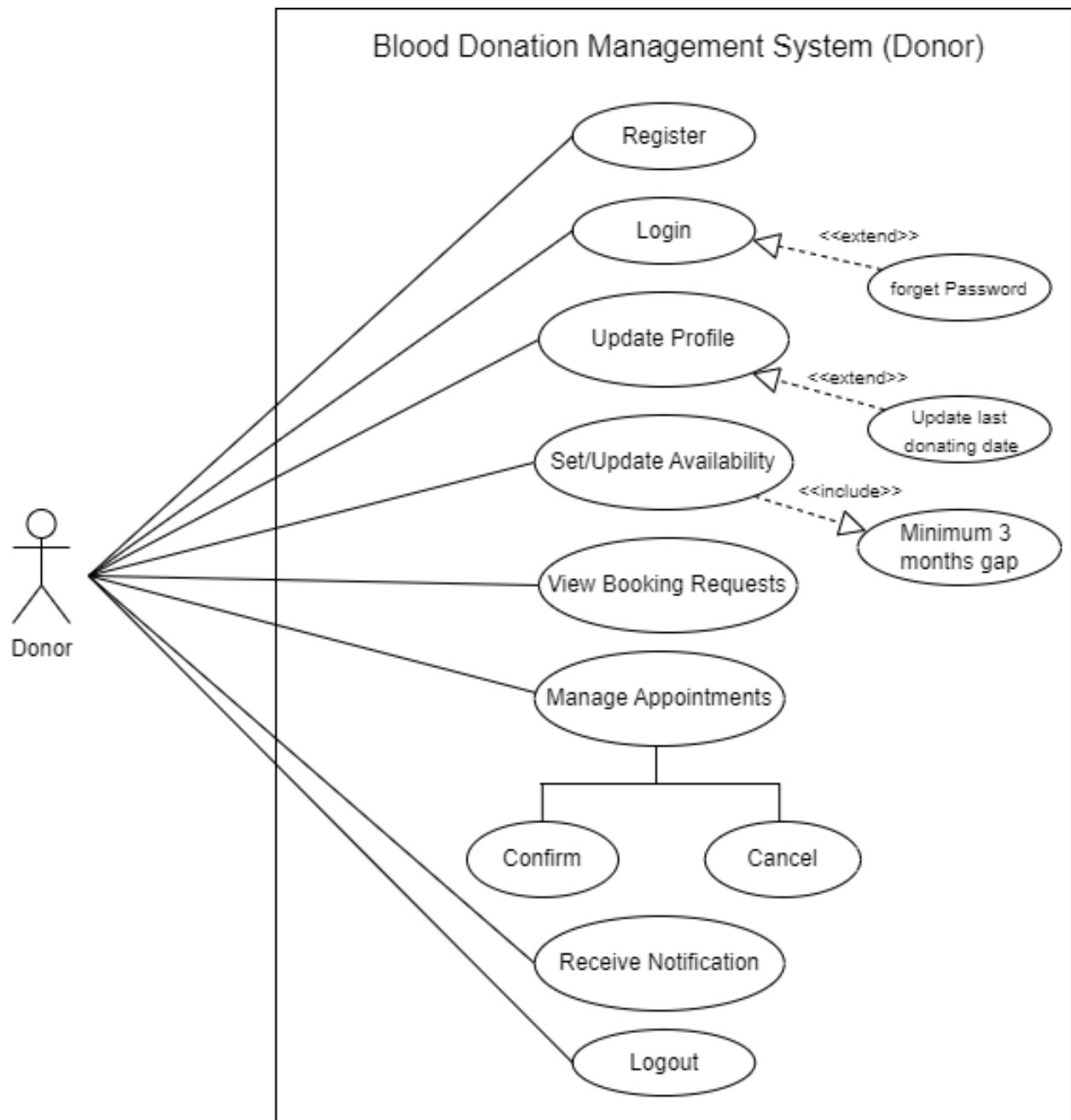
Admin:



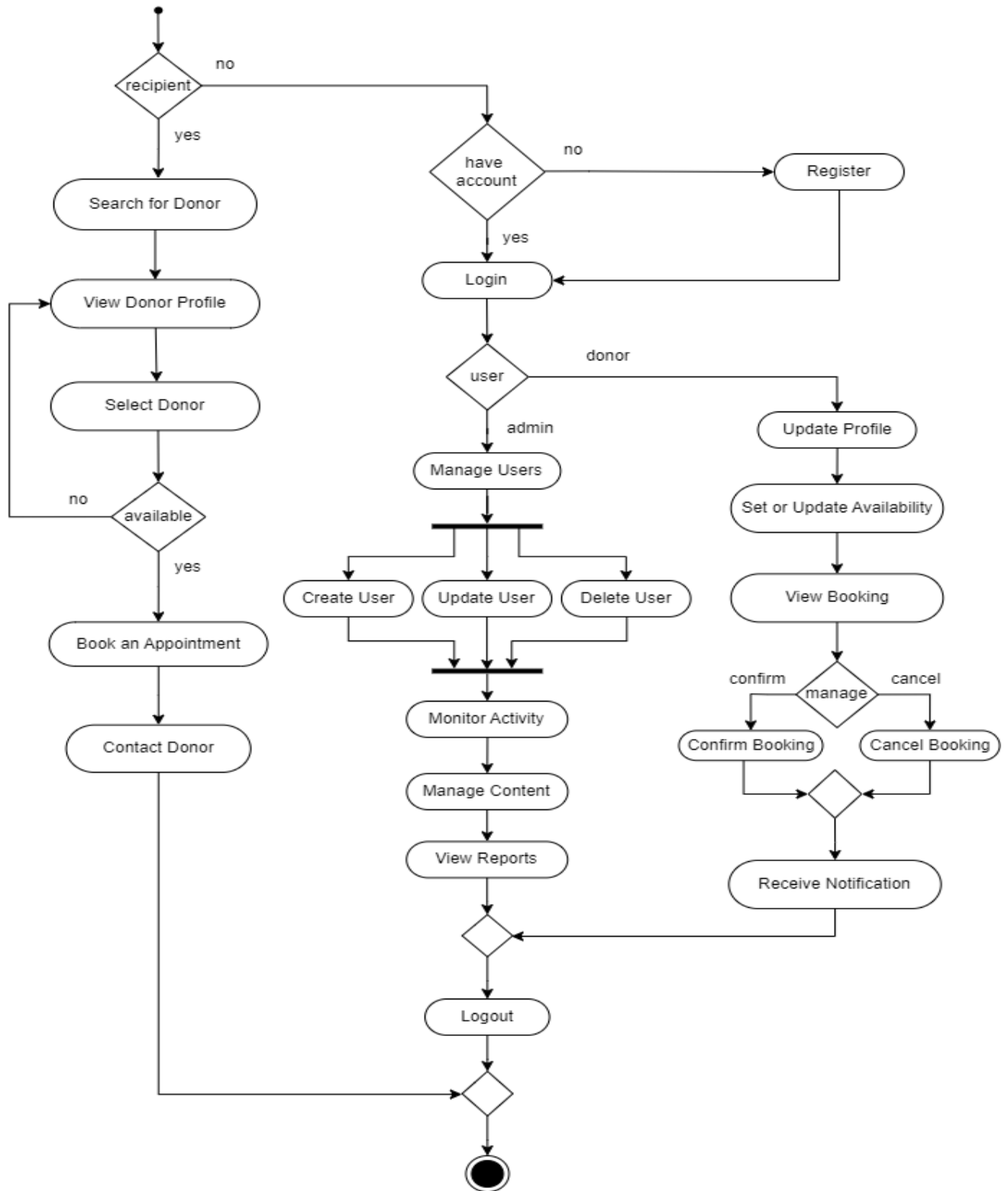
Recipient:



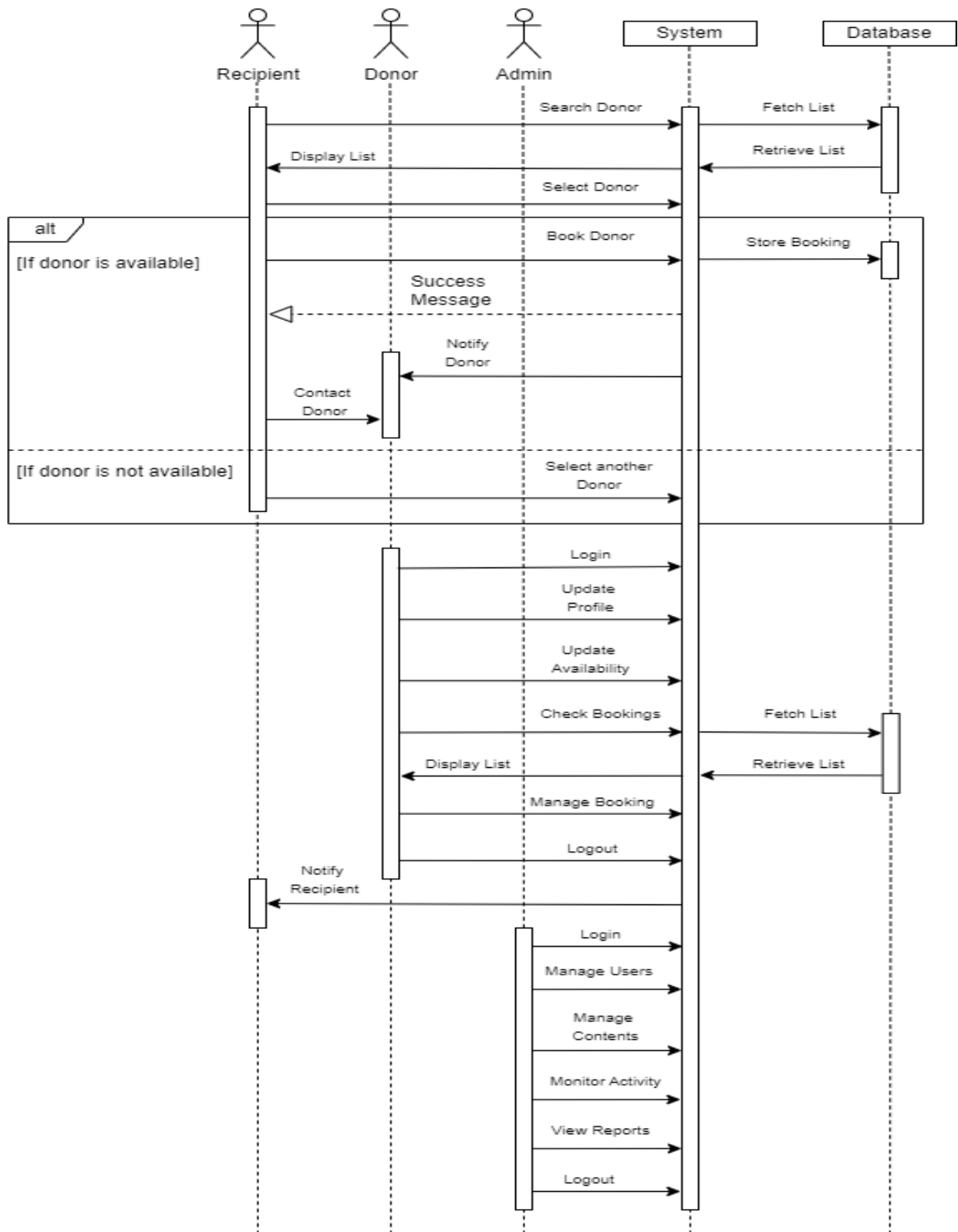
Donor:



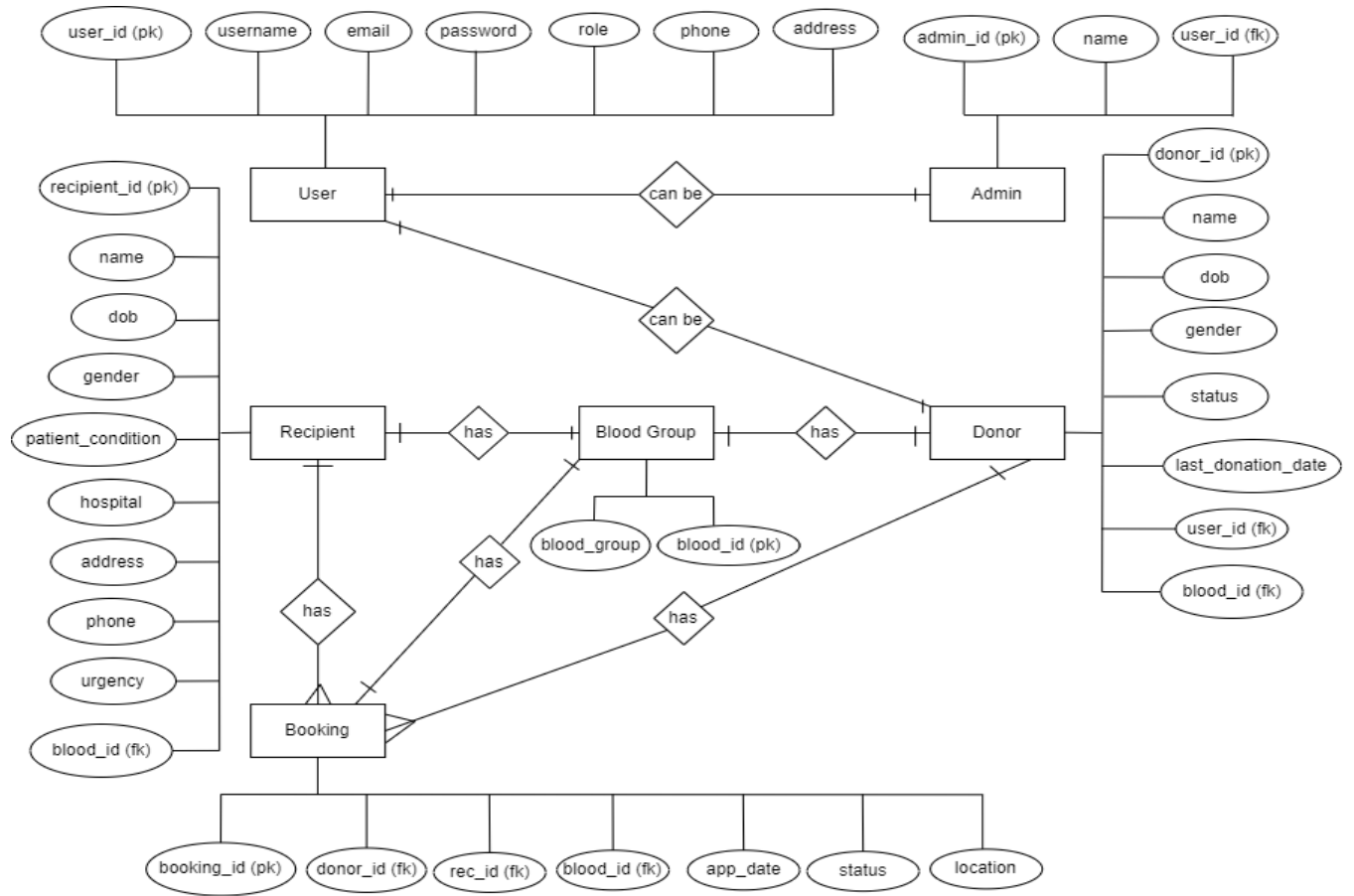
2.6 Activity Diagram:



2.7 Sequence Diagram:



2.8 Entity Relationship Diagram:



2.9 Gantt Chart

Task	Duration	Status
Requirement Analysis	2 weeks	Completed
Frontend Development	6 weeks	Completed
Backend Development	8 weeks	Completed
Integration and Testing	4 weeks	Ongoing

2.10 SWOT Analysis:

Strengths:

1. Streamlined Donor-Recipient Matching:

- The website offers a real-time matching system, making it easier and quicker to connect donors with recipients, potentially saving more lives.

2. User-Friendly Interface:

- An intuitive and easy-to-navigate platform encourages more users to register, search, and schedule appointments, increasing participation rates.

3. Educational Resources:

- The site can provide valuable information about the importance of blood donation, eligibility, and the donation process, raising awareness and encouraging more people to donate.

4. Community Building:

- The platform fosters a sense of community among donors, recipients, and healthcare providers, encouraging regular blood donations and sustained engagement.

Weaknesses:

1. Dependence on User Participation:

- The effectiveness of the platform relies heavily on a large and active user base. Without sufficient donor registration, matching recipients with donors can be challenging.

2.Security Concerns:

- Handling sensitive personal and medical data presents a risk. Any breach of data security could damage the platform's reputation and trustworthiness.

3. Operational Complexity:

- Managing and updating the platform, including integrating with various healthcare systems, blood banks, and regulatory requirements, can be complex and resource-intensive.

4. Limited Reach:

- The website's effectiveness may be limited to regions with adequate internet access and awareness, potentially excluding rural or less technologically advanced areas.

Opportunities:

1.Expansion to Mobile Platforms:

- Developing a mobile app version of the website could increase accessibility and engagement, especially among younger demographics who are more mobile-oriented.

2.Partnerships with Healthcare Organizations:

- Collaborating with hospitals, blood banks, and government health agencies can enhance credibility, expand reach, and ensure a more consistent supply of donors.

3. Incentive Programs:

- Introducing reward programs for frequent donors could encourage more people to donate regularly, helping to address blood shortages more effectively.

4.Global Reach:

- Expanding the platform to operate internationally could help in managing global blood donation efforts, especially in regions with high demand or shortages.

Threats:

1.Regulatory Challenges:

- Compliance with different regional and international health regulations can be difficult and costly, potentially limiting the website's expansion and functionality.

2.Competition from Existing Platforms:

- Other established blood donation apps or websites may pose competition, making it difficult to attract and retain users.

3.Data Security Threats:

- The risk of cyber-attacks or data breaches could compromise user data and undermine the platform's credibility.

4.User Reluctance:

- Potential donors may be hesitant to register or provide personal information online due to privacy concerns, affecting the overall effectiveness of the platform.

CHAPTER 3 : DESIGN SPECIFICATION

This section outlines the design and structure of the **Donate Life** project, detailing how various components come together to create an effective, user-friendly, and robust system. It includes an in-depth exploration of the frontend design, backend architecture, user interaction design, and implementation requirements.

3.1 Front-End Design

The frontend of the **Donate Life** platform focuses on creating an intuitive, visually appealing, and accessible interface. The design prioritizes simplicity and efficiency, ensuring that users of all technical abilities can navigate the system with ease.

3.1.1 Framework: The frontend is built using **React.js**, a powerful JavaScript library for building interactive user interfaces. This enables:

- Component-based architecture for modular design.
- Efficient rendering of dynamic content.
- Improved performance through virtual DOM.

3.1.2 Styling: The platform employs **Tailwind CSS**, a utility-first CSS framework that allows for rapid prototyping and consistent styling across the application. Key features include:

- **Responsive Design:** Ensures the platform is accessible on devices of all screen sizes, including desktops, tablets, and mobile phones.

- **Custom Themes:** Tailored themes provide a clean, professional look while aligning with accessibility guidelines (e.g., WCAG compliance).

3.1.3 Key Pages:

- **Home Page:** Welcomes users with an overview of the platform, highlighting its purpose and key features.
- **Registration/Login:** Facilitates secure user authentication and profile creation.
- **Dashboard:** Displays personalized information, including donor or recipient matches, notifications, and profile settings.
- **Search and Match Page:** Enables recipients to search for available resources and donors to update their availability.

3.1.4 User Interactions:

- **Real-Time Feedback:** Loading indicators, confirmation messages, and error alerts keep users informed.
- **Interactive Forms:** Validation checks ensure users provide accurate and complete information.

3.1.5 Frontend Accessibility:

- Designed to meet international standards for accessibility.
- Keyboard navigability and screen-reader compatibility ensure inclusivity for users with disabilities.

3.2 Back-End Design

The backend of **Donate Life** handles the core logic, data storage, and processing. It is built using **Node.js** with the **Express.js** framework, chosen for its performance and scalability.

3.2.1 Architecture:

- **Server-Side Framework:** Express.js provides a robust structure for API creation, routing, and middleware implementation.
- **Database:** MongoDB is used for data storage, offering flexibility in handling unstructured data, which is ideal for diverse user profiles and resource types.

3.2.2 Core Functionalities:

- **User Management:** Secure registration, login, and profile updates are supported by hashed passwords and encrypted data transfers.
- **Matching Algorithm:** A custom-built algorithm efficiently matches donors and recipients based on location, resource type, and urgency.
- **Notification System:** Real-time notifications are powered by WebSockets, ensuring prompt communication between matched users.

3.2.3 Security Measures:

- **Encryption:** Data is secured using HTTPS and data encryption protocols (e.g., TLS/SSL).
- **Role-Based Access Control (RBAC):** Limits administrative privileges to authorized users only.

- **Data Validation:** Ensures that inputs from users conform to expected formats and parameters.

3.2.4 Scalability:

- The backend architecture is designed to handle increasing user traffic and support future integrations like AI-based analytics or international deployment.

3.3 Interaction Design and UX

The interaction design and user experience (UX) strategies of **Donate Life** focus on enhancing usability and user satisfaction through well-thought-out navigation and intuitive design.

3.3.1 User Journey Mapping:

- From landing on the homepage to completing a donation or receiving a resource, every step of the user journey is optimized for minimal friction.
- For example:
 - Donors can update their availability in three clicks.
 - Recipients can search for compatible matches by entering minimal but essential details.

3.3.2 Navigation Design:

- **Top Navigation Bar:** Contains key links to the dashboard, profile, and help center.
- **Side Panels:** Display additional options like notifications and user settings.

- **Breadcrumb Trails:** Help users retrace their steps and maintain context.

3.3.3 Feedback Mechanisms:

- Success messages (e.g., "Profile updated successfully").
- Error prompts (e.g., "No matches found at this time; try refining your search criteria").
- Tooltips for explaining complex actions or fields.

3.3.4 Mobile-First Approach:

- The platform is designed with a mobile-first philosophy, ensuring seamless usability on smartphones while maintaining full functionality on larger screens.

3.3.5 Testing for Usability:

- Conducted user testing with diverse demographics to ensure the design accommodates various user preferences and skill levels.

3.4 Implementation Requirements

The implementation of **Donate Life** necessitates a carefully chosen set of tools and technologies to ensure reliability, scalability, and efficiency.

3.4.1 Frontend Tools:

- **React.js:** For building dynamic and interactive interfaces.
- **Tailwind CSS:** For rapid styling and consistent design

3.4.2 Backend Tools:

- **Node.js and Express.js:** To handle server-side logic and API creation.
- **MongoDB:** For managing user data and donation records.

3.4.3 Hosting and Deployment:

- **Firebase:** Used for hosting static assets and enabling serverless functions.
- **Vercel:** Simplifies deployment of frontend components.
- **MongoDB Atlas:** Cloud-based database service for scalable and secure storage.

3.4.4 Development Environment:

- **Version Control:** Git and GitHub for collaborative development and tracking changes.
- **Code Editor:** Visual Studio Code, with extensions for linting and debugging.

CHAPTER 4 : Implementation and Testing

The **Donate Life** platform is a comprehensive full-stack web application developed to streamline the donation process by connecting donors and recipients. The implementation includes database design, frontend and backend development, integration of system components, and user interaction mechanisms. Each part has been meticulously planned and executed to ensure scalability, security, and efficiency.

4.1 Database Implementation

The database forms the backbone of the system, securely storing user profiles, donation requests, and match records. **MongoDB**, a NoSQL database, was chosen for its schema flexibility and ability to handle large datasets.

4.1.1 Database Design

- **Collections:**
 1. **Donors Collection:**
 - **Fields:** name, bloodType, location, phone, lastDonationDate, status.
 - **Purpose:** Tracks donor details and availability for matching.
 2. **Recipients Collection:**
 - **Fields:** name, resourceType, urgencyLevel, location, contactDetails.
 - **Purpose:** Maintains recipient requests for resource allocation.
 3. **Matches Collection:**
 - **Fields:** donorID, recipientID, matchStatus, timestamp.

- **Purpose:** Logs successful matches and tracks their status.

4.1.2 Data Security

- All sensitive fields, such as phone and contactDetails, are encrypted at rest.
- Environment variables manage secure database connection strings to prevent unauthorized access.

4.1.3 Optimization

- Indexed fields, including bloodType, location, and urgencyLevel, ensure high-speed queries.
- Aggregation pipelines are used for complex match-making logic, combining donor and recipient data dynamically.

4.1.4 Sample Data Population

Data initialization during development was carried out using structured JSON files. Below is an example for the **Donors Collection**:

json

Copy code

```
{  
  "name": "Jane Doe",  
  "bloodType": "O-",  
  "location": "Los Angeles",  
  "phone": "+1 555-123-4567",
```

```
"lastDonationDate": "2023-09-15",  
"status": "Active"  
}
```

4.2 Frontend Implementation

The frontend delivers a responsive, user-friendly interface, ensuring seamless interaction between users and the platform.

4.2.1 Technology Used

- **React.js:** Modular component-based architecture for dynamic content rendering.
- **Tailwind CSS:** Enables utility-first styling for a clean and consistent design.

4.2.2 Key UI Components

1. Registration and Login Forms:

- Real-time validation ensures proper data entry, with tooltips for errors (e.g., invalid email formats).
- Example: If the user enters abc.com as an email, the system immediately prompts:
"Please enter a valid email address."

2. Dashboard:

- Displays personalized metrics such as active matches, donation history, and notifications.
- Accessible via distinct views for donors, recipients, and admins.

3. Search Page:

- Recipients can filter donors by blood type, location, and availability.
- Results dynamically update without requiring page reloads.

4.2.3 Responsive Design

- Built with a mobile-first approach, ensuring compatibility across smartphones, tablets, and desktops.
- CSS media queries adjust layouts and font sizes to suit various screen sizes.

4.3 Backend Implementation

The backend is the brain of the platform, managing data processing, business logic, and API interactions.

4.3.1 Technology Used

- **Node.js:** Handles asynchronous operations efficiently.
- **Express.js:** Framework for building RESTful APIs.

4.3.2 Core Functionalities

1. Authentication and Authorization:

- **JWT (JSON Web Tokens)** for secure session handling.
- Role-based access control restricts admin features to authorized personnel.

2. Matching Algorithm:

- Matches donors and recipients based on:
 - Blood type compatibility.
 - Geographic proximity.
 - Urgency level.
- Algorithm Workflow:
 - Fetch available donors from the Donors collection based on recipient criteria.
 - Prioritize matches by urgency and location radius.

3. Real-Time Notifications:

- Implemented using **WebSockets**, ensuring immediate updates for new matches or approvals.

4.3.3 Middleware and Error Handling

- Middleware validates incoming requests, ensuring data integrity before processing.
- Centralized error handling captures issues and provides detailed logs for developers while displaying user-friendly error messages.

4.4 Interaction Mechanisms

The **Donate Life** platform ensures smooth and intuitive interactions between users and the system.

4.4.1 User Interactions

1. Registration:

- Validation rules check mandatory fields like email and password.
- Users receive a confirmation message upon successful signup.

2. Search and Match:

- Real-time search results dynamically update based on recipient criteria.
- Notifications inform donors of new matches via WebSockets.

3. Approval Workflow:

- Users can approve or decline matches.
- Status changes are reflected immediately in the dashboard.

4.4.2 Admin Interactions

1. User Management:

- Admins can deactivate or update user accounts.

2. Match Oversight:

- Admins review pending matches, approve connections, or provide feedback to recipients.

4.5 Integration and Deployment

4.5.1 Integration

- **Frontend-Backend Communication:**

- APIs facilitate seamless data exchange using **Axios** for HTTP requests.
- Example: The `/api/matches` endpoint fetches and returns donor-recipient matches.

- **Real-Time Features:**

- WebSocket connections deliver instant notifications for new matches or updates.

4.5.2 Deployment

1. **Frontend:**

- Deployed on **Firebase Hosting**, offering low-latency global content delivery.

2. **Backend:**

- Hosted on **Vercel**, leveraging serverless architecture for scalable API handling.

3. **Database:**

- Managed using **MongoDB Atlas**, ensuring secure and reliable storage.

4.6 Security Implementation

1. **Data Encryption:**

- Encrypts sensitive data both in transit (using HTTPS) and at rest.

2. **Authentication:**

- Secure login sessions using JWT to prevent unauthorized access.

3. **Role-Based Access Control:**

- Segregates user and admin functionalities to enhance security.

4.7 Key Challenges and Solutions

1. Real-Time Notifications:

- **Challenge:** Notification delays during peak traffic.
- **Solution:** Optimized WebSocket configurations and server resource allocation.

2. Validation Issues:

- **Challenge:** Edge cases bypassing frontend validation.
- **Solution:** Enhanced validation logic in backend middleware.

4.8 Testing Features

1. User Registration/Signup

Ensures that users (donors or recipients) can successfully register.

2. User Login

Verifies secure access to user accounts.

3. Search for Matches (User)

Tests the functionality for recipients to search for donors based on specific criteria like blood type or location.

4. **Approve Matches (User)**

Confirms that users can approve or reject matches suggested by the system.

5. **Admin Login**

Ensures administrators can securely access the admin dashboard.

6. **Manage Users (Admin)**

Tests the admin's ability to view, update, activate/deactivate, or delete user accounts.

7. **Match Approval Workflow (Admin)**

Verifies the process of match approval and rejection by administrators.

4.8.1 Testing Strategy

Testing Approach

- The system will be manually tested in a step-by-step manner to validate the functionalities of both user and admin modules.

Pass/Fail Criteria

1. **Component Pass/Fail Criteria**

- The test will **pass** if the feature works as per the design requirements.
- The test will **fail** if it does not meet the specified objectives.

Suspension and Resumption

1. Regression Testing

- Ensures the system continues to work correctly after each update or modification.

2. Build Acceptance Testing

- Each system build must pass testing to proceed; a failed build will require fixes and re-testing.

3. System Design Changes

- Any updates to the design must maintain the system's integrity and functionality.
-

4.8.2 Test Cases

Test Case 01: User Registration

Table 4.8.2.1: User Registration

Test Case #	Test Case Name	System	Subsystem
01	User Registration	Registration	N/A

Designed By	Design Date
Team Donate Life	2024-11-20

Executed By	Execution Date
Md Sadnan Sadad Shouruv	2024-11-22

Step	Action	Pass/Fail	Comment
1	User fills in only the name field and clicks "Register".	Pass	Prompts user to complete other fields.
2	User clicks "Register" without filling in any fields.	Pass	Displays error for missing required fields.
3	User enters an invalid email format (e.g., abc.com).	Pass	Prompts user to provide a valid email.
4	User enters valid email and clicks "Register".	Pass	Registration succeeds.
5	User enters a weak password not meeting requirements.	Pass	Prompts user to follow password guidelines.

Test Case 02: User Login

Table 4.8.2.2: User Login

Test Case #	Test Case Name	System	Subsystem
--------------------	-----------------------	---------------	------------------

02	User Login	User Login	N/A
----	------------	------------	-----

Designed By	Design Date
Md Sadnan Sadad Shouruv	2024-11-20

Executed By	Execution Date
Md Sadnan Sadad Shouruv	2024-11-23

Step	Action	Pass/Fail	Comment
1	User fills in only the email field and clicks "Login".	Pass	Prompts user to enter the password.
2	User clicks "Login" without filling in any fields.	Pass	Displays error for missing required fields.
3	User enters an invalid email format (e.g., abc.com).	Pass	Prompts user to provide a valid email.
4	User enters correct credentials and clicks "Login".	Pass	Successfully logs in.

Test Case 03: Admin Login

Table 4.8.2.3: Admin Login

Test Case #	Test Case Name	System	Subsystem
03	Admin Login	Admin Login	N/A

Designed By	Design Date
Md Sadnan Sadad Shouruv	2024-11-20

Executed By	Execution Date
Md Sadnan Sadad Shouruv	2024-11-24

Step	Action	Pass/Fail	Comment
1	Admin enters incorrect credentials and clicks "Login".	Pass	Displays error message for invalid credentials.
2	Admin enters valid credentials and clicks "Login".	Pass	Successfully logs in to the admin dashboard.

Test Case 04: Manage Users (Admin)

Table 4.8.2.4: Manage Users (Admin)

Test Case #	Test Case Name	System	Subsystem
04	Manage Users	Admin Dashboard	N/A

Designed By	Design Date
Md Sadnan Sadad Shouruv	2024-11-20

Executed By	Execution Date
Md Sadnan Sadad Shouruv	2024-11-25

Step	Action	Pass/Fail	Comment
1	Admin views the list of registered users.	Pass	Displays user list successfully.
2	Admin deactivates a user account.	Pass	User account deactivated successfully.
3	Admin deletes a user account.	Pass	Account deleted successfully.

Test Case 05: Match Approval Workflow

Table 4.8.2.5 : Match Approval Workflow

Test Case #	Test Case Name	System	Subsystem
05	Match Approval	Match Management	N/A

Designed By	Design Date
Md Sadnan Sadad Shouruv	2024-11-20

Executed By	Execution Date
Md Sadnan Sadad Shouruv	2024-11-26

Step	Action	Pass/Fail	Comment
1	Admin approves a match.	Pass	Match approved and logged successfully.
2	Admin rejects a match, and it does not proceed further.	Pass	Match rejected successfully.

CHAPTER 5 : CONCLUSION AND FUTURE WORK

5.1 Conclusion

The **Donate Life** project successfully addresses critical inefficiencies in traditional donation systems by offering a scalable, secure, and user-friendly platform. By leveraging advanced technologies such as React.js for the frontend, Node.js for the backend, and MongoDB for database management, the system ensures high performance, responsiveness, and reliability. The platform's intuitive interface makes it accessible to a diverse user base, simplifying the process of registering as a donor or recipient and facilitating effective matches.

A key highlight of the project is its robust matching algorithm, which prioritizes urgency and compatibility. This significantly reduces wait times and maximizes the likelihood of successful donations. Security is a cornerstone of the platform, with features like end-to-end encryption, secure authentication using JWT, and role-based access controls. Together, these measures build user trust and safeguard sensitive medical and personal information.

In summary, the **Donate Life** project delivers a meaningful solution to the challenges of resource allocation in healthcare. It not only streamlines the donation process but also creates a reliable system for future expansion, such as AI-powered analytics or international support. By fostering efficient donor-recipient connections, **Donate Life** sets a new standard for donation platforms, ultimately saving lives and improving community health outcomes.

5.2 Future Scope

The platform's future roadmap includes:

1 Mobile Application Development: Native apps for iOS and Android.

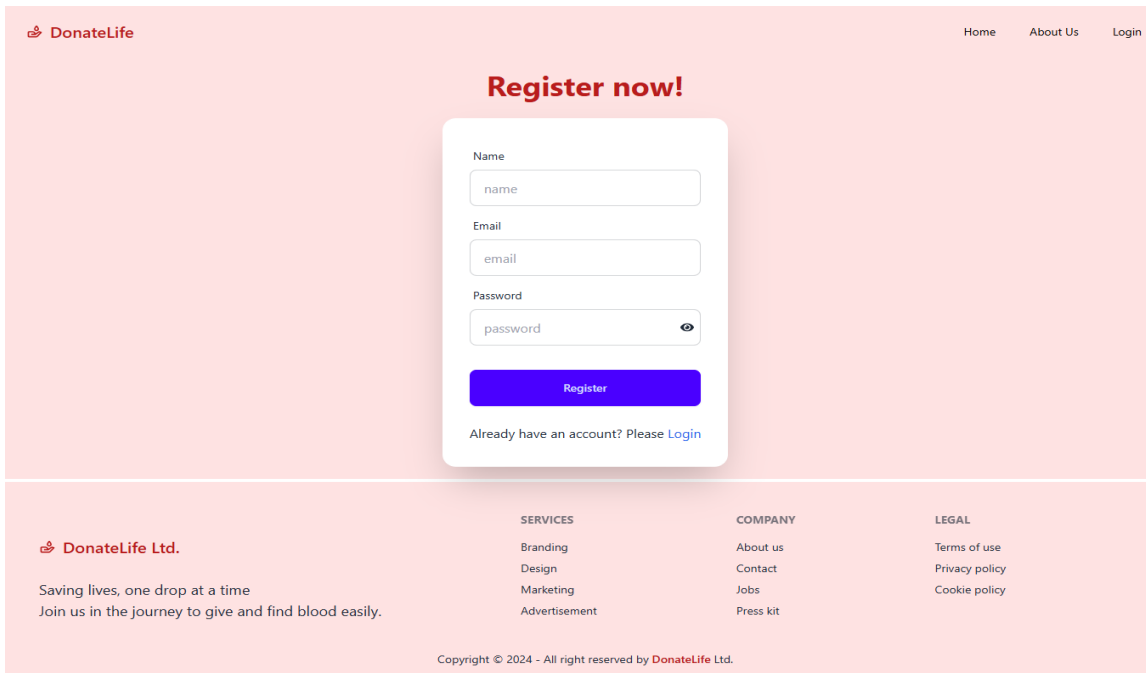
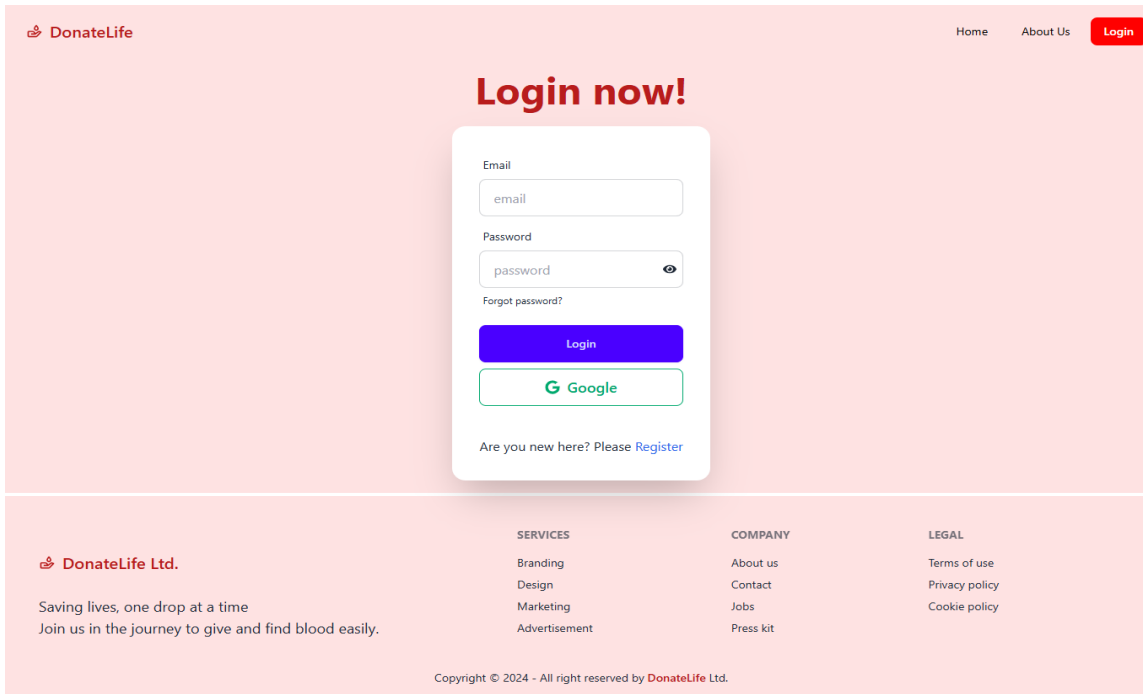
2 AI Integration: Predict donation needs based on historical data and trends.

3 Real-Time Chat: Facilitate instant communication between matched donors and recipients.

4 Global Expansion: Support multiple languages and international donation networks.

CHAPTER 6 : APPENDIX

6.1 System Design



Home Page

DonatLife Home About Us Contact Us Search Donors Blood Request

Save Lives, Donate Blood

Your donation can make a difference. Join our community of life savers today.

[Donate Now](#) [Find Donors](#)

Save Lives
Your donation can save lives.

Join Community
Be part of a caring community of donors.

Easy Process
Simple and quick donation process.

Ready to Save Lives?

"Your blood donation is a gift of life. Be the hope someone needs. Join our community of life savers today."

[Get Started](#)

FAQ

- Who can register as a blood donor? +
- How can I search for a blood donor by blood group? +
- Is there a cost for using this service? +
- How can I ensure the privacy of my information? +
- How often can I donate blood? +
- What should I do if I need blood urgently? +

DonatLife Ltd.
Saving lives, one drop at a time
Join us in the journey to give and find blood easily.

SERVICES
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Blood Request

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Terms and condition
Privacy policy

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About DonateLife

DonateLife is a non-profit organization dedicated to connecting blood donors with those in need. Our mission is to save lives by making blood donation accessible, efficient, and community-driven.



Our Mission

To ensure that every patient in need has access to safe, life-saving blood when they need it most.



Our Community

Building a network of dedicated donors and volunteers committed to making a difference in their communities.



Our Impact

Since our founding, we've facilitated over 100,000 successful blood donations across the country.

Our Team

Dr. Sarah Johnson

Dr. Sarah Johnson

Founder & CEO



Michael Chen

Michael Chen

Chief Operations Officer



Dr. Emily Rodriguez

Dr. Emily Rodriguez

Medical Director



David Nkosi

David Nkosi

Community Outreach Manager



Our Achievements



100,000+

Successful Donations



50,000+

Registered Donors



100+

Cities Covered

Join Our Mission

Whether you're a donor, volunteer, or supporter, there's a place for you in our community. Together, we can make a difference.

Get Involved

DonateLife Ltd.

Saving lives, one drop at a time
Join us in the journey to give and find blood easily.

SERVICES

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Blood Request

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About us


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Contact Us

Get in touch with us for any questions about blood donation

 **Email**
contact@donatelife.com

 **Phone**
+1 (555) 000-0000

 **Address**
123 Donation Street
City, State 12345

For Donation

Bkash: 01000000000

Nagad: 01000000000

Rocket: 01000000000

 **DonateLife Ltd.**

Saving lives, one drop at a time

Join us in the journey to give and find blood easily.

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Search Blood Donors

Blood Type

Select Blood Type

Location

Location

Search Donors

Sophia Taylor

AB-

Seattle

+1 206-987-6543

Contact Donor

Mike Johnson

B+

Chicago

+1 555-123-4567

Contact Donor

Isabella Anderson

A+

Denver

+1 720-654-1230

Contact Donor

Emily Davis

AB+

San Francisco

+1 321-654-9870

Contact Donor

Olivia Wilson

A-

Boston

+1 718-123-7890

Contact Donor

Benjamin Moore

O+

Austin

+1 713-765-4321

Contact Donor

Jane Smith

O-

Los Angeles

+1 987-654-3210

Contact Donor

James Miller

B-

Miami

+1 512-234-5678

Contact Donor

William Brown

O+

Dallas

+1 415-987-6543

Contact Donor

sadnan

O+

dhaka

01581392227

Contact Donor

Sadnan Shouruv

A+

Dhaka

01929938394

Contact Donor

Md. Sadnan Sadad Shouruv 211-51-039

B+

dhaka

01581392227

Contact Donor



Submit Blood Request

Request Form

Patient Name

Enter patient name

Blood Type

Select blood type

Hospital Name

Enter hospital name

Location

Enter location

Number of Bags

Select blood Bag Amount

Urgency

Select urgency level

Required Date

dd-----yyyy



Contact Number

Enter contact number

Additional Information

Enter any additional information

Submit Request

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-  Admin Home
- All Users
- Donor List
- Blood Request
- Logout

Q Search...

Dashboard

Total Donors 

1,259

+20% from last month

Recent Donations

Donor Name	Blood Type	Date	Status
John Doe	A+	2023-06-15	Completed
Jane Smith	O-	2023-06-14	Completed
Bob Johnson	B+	2023-06-13	Pending
Alice Brown	AB-	2023-06-12	Completed
Charlie Davis	A-	2023-06-11	Pending



Admin Home

All Users




Donor List


Blood Request

Logout

All Users

Search User

#	Name	Email	Role	Action
1	admin	admin@gmail.com	admin	
2	sadnan	user@gmail.com	user	
3	Sadnan Shourov	ss.shourav77@gmail.com	user	



[Admin Home](#)

[All Users](#)

[Donor List](#)


[Blood Request](#)

[Logout](#)

Search donors...





















Donors


Name	Blood Type	Last Donation	Status	Actions
Jane Smith	O-	2022-12-03	Inactive	...
Mike Johnson	B+	2024-03-20	Active	...
Emily Davis	AB+	2022-11-12	Inactive	...
William Brown	O+	2023-09-25	Active	...
Olivia Wilson	A-	2023-07-10	Inactive	...
James Miller	B-	2023-02-18	Active	...
Sophia Taylor	AB-	2022-10-05	Inactive	...
Benjamin Moore	O+	2023-12-15	Active	...
Isabella Anderson	A+	2024-01-22	Inactive	...
sadnan	O+	2024-11-01	Active	...
Sadnan Shourov	A+	2024-11-09	Active	...

- 
- Admin Home
- All Users
- Donor List
- Blood Request**
- Logout

Search requests...

Blood Requests

Patient Name	Blood Type	Units	Urgency	Hospital	Status	Actions
David Miller	A+	2	High	City Hospital	Fulfilled	 
Michael Brown	B+	1	Medium	Saint Mary's Hospital	Pending	 
Sarah Johnson	AB+	2	Medium	Riverdale Medical Center	Fulfilled	 
John Walker	A-	4	High	Grace General Hospital	Pending	 
Olivia Martinez	O+	3	High	Sunset Medical	Fulfilled	 
Sophia Lee	B-	2	Medium	Lakeside Hospital	Pending	 
James Wilson	AB-	1	Low	Sunnybrook Hospital	Fulfilled	 
Lucas Thompson	O+	5	High	New Horizons Medical Center	Fulfilled	 
Mia Taylor	A+	2	Medium	Northern Health	Pending	 
asif	O+	2	high	labaid	Pending	 

- 
- User Home**
- My Requests
- Message Box
- Logout

User Dashboard


Complete Your Profile

Name
asif


Blood Type
Blood Type

Location
Location

Phone
Phone

Last Donation Date
dd-----yyyy 

[✔ Submit](#)



User Home

My Requests

Message Box

Logout

User Dashboard

Total Donation Request

1

Lifetime donations


Blood Type

O+

Blood group

Donation Requests

BLOOD TYPE	LOCATION	STATUS	CONTACT NUMBER
O+	dhaka	Pending	01763052097



User Home

My Requests

Message Box

Logout

Donation Requests

PATIENT NAME	BLOOD TYPE	LOCATION	STATUS	DATE	ACTION
Test patient	O+	Mirpur DOHS	Fulfilled	2024-11-19	Received
Test patient 2	A+	Dhanmondi, Dhaka	Pending	2024-11-21	Received

Messages

Search messages...

SENDER	SUBJECT	STATUS	ACTIONS
sadnan	need blood urgently	Unread	Mark as Read Delete

Previous Page 1 of 1 Next

Messages

Search mes

need blood urgently
From: sadnan
need blood labaid hospital 01763052097

Close

SENDER sadnan ACTIONS [Mark as Unread](#) [Delete](#)

Previous Next

6.2 Database

- ▼ donateLife
 - bloodRequest
 - donorList
 - userMessage
 - users
- ▶ sample_mflix

Find Indexes Schema Anti-Patterns Aggregation Search Indexes

Generate queries from natural language in Compass INSERT DOCUMENT

Filter Type a query: { field: 'value' } Reset Apply Options

```

_id: ObjectId('672f0f111df89612cec6cbf4')
patientName: "Lucas Thompson"
hospitalName: "New Horizons Medical Center"
location: "Boston, MA"
requireDate: "2024-12-05"
contactNumber: "+1 890-123-4567"
additionalInfo: "Scheduled surgery for liver transplant."
bloodType: "O+"
bloodQuantity: 5
urgency: "High"
status: "Fulfilled"

```

System Status: All Good

Search Namespaces

- ▼ donateLife
 - bloodRequest
 - donorList
 - userMessage
 - users
- ▶ sample_mflix

STORAGE SIZE: 36KB LOGICAL DATA SIZE: 1.91KB TOTAL DOCUMENTS: 12 INDEXES TOTAL SIZE: 36KB

Find Indexes Schema Anti-Patterns Aggregation Search Indexes

Generate queries from natural language in Compass INSERT DOCUMENT

Filter Type a query: { field: 'value' } Reset Apply Options

```

_id: ObjectId('6731c7f89ed0e9a832787d2e')
name: "Sadnan Shouruv"
bloodType: "A+"
location: "Dhaka"
phone: "01929938394"
last_donation: "2024-11-09"
status: "Active"

```

```

_id: ObjectId('6731e4315dab1cab09d9a6b7')
name: "Md. Sadnan Sadad Shouruv 211-51-039"
bloodType: "B+"
location: "dhaka"
phone: "0150130227"

```

Search Namespaces

- donateLife
 - bloodRequest
 - donorList
 - userMessage**
 - users
- sample_mflix

STORAGE SIZE: 36KB LOGICAL DATA SIZE: 517B TOTAL DOCUMENTS: 3 INDEXES TOTAL SIZE: 36KB

Find Indexes Schema Anti-Patterns Aggregation Search Indexes

Generate queries from natural language in Compass INSERT DOCUMENT

Filter Type a query: { field: 'value' } Reset Apply Options

```

recieverName : "Sadnan Shouruv"
senderName : "sadnan"
message : "Nedd blood in heart foundation contact number 019292992"
messageSubject : "for trial"

_id: ObjectId('6731e52eec6303ff41031cf0')
recieverName : "Md. Sadnan Sadad Shouruv 211-51-039"
senderName : "sadnan"
message : "need blood labaid hospital 01763052097"
messageSubject : "need blood urgently "

```

- donateLife
 - bloodRequest
 - donorList
 - userMessage
 - users**
- sample_mflix

Find Indexes Schema Anti-Patterns Aggregation Search Indexes

Generate queries from natural language in Compass INSERT DOCUMENT

Filter Type a query: { field: 'value' } Reset Apply Options

```

_id: ObjectId('6730ce35c88b209d77018d6d')
name : "sadnan"
email : "user@gmail.com"
role : "user"

_id: ObjectId('6731c7d29ed0e9a832787d2d')
name : "Sadnan Shouruv"
email : "ss.shourav77@gmail.com"
role : "user"

```

System Status: All Good

CHAPTER 7: REFERENCES

1 MongoDB Documentation - <https://www.mongodb.com/docs/>

2 React Official Documentation - <https://reactjs.org/>

3 Express.js Documentation - <https://expressjs.com/>

4 Tailwind CSS Guide - <https://tailwindcss.com/>

Project

ORIGINALITY REPORT

11 %	7 %	2 %	7 %
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	dspace.daffodilvarsity.edu.bd:8080 Internet Source	2 %
2	123dok.com Internet Source	1 %
3	Submitted to IIT Delhi Student Paper	1 %
4	Submitted to Bahrain Polytechnic Student Paper	1 %
5	Submitted to University of Auckland Student Paper	1 %
6	Submitted to Ibri College of Technology Student Paper	<1 %
7	Inu.diva-portal.org Internet Source	<1 %
8	Submitted to University of London External System Student Paper	<1 %
9	repository.ju.edu.et Internet Source	<1 %