PROJECT
PROPOSAL

Student Information:

Student's name:

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Semester: 6th

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Project Proposal: Blood Donation Website

Project Information
Project Name: Life Blood

Project Goal: Create a website for connecting blood donors with recipients in need of specific blood types.

Project Description
In times of medical emergencies, finding blood donors quickly and efficiently can be a challenge. Lifeblood aims to bridge this gap by connecting patients or caregivers with blood donors through an intuitive web-based platform. Users will be able to search for available blood donors by blood type, location, and availability, streamlining the process of finding the right match.

Project Features
1. User Interface:
   - Displays a comprehensive list of registered blood donors, searchable by blood type, location, and availability status.
   - Highlights donors available to be contacted directly.

2. Donor Registration and Profile Management:
   - Allows donors to sign up and input essential details, including blood type, contact number, email address, location, and availability.
   - Donors can update their profiles, providing accurate and timely information for those in need.

3. Request and Notification System:
   - Enables users seeking blood to send requests to compatible donors.
   - Sends real-time notifications to registered donors for quick response to requests.

4. Backend and Data Management:
   - A robust backend system tracks donor information, availability, and request queues.
   - Manages profile updates and appointment scheduling to avoid conflicts and ensure data privacy.

Tools to be Used

IDE: Visual Studio Code for frontend development, IntelliJ IDEA for backend development.

Languages: Java, Kotlin, JavaScript, HTML, CSS, SQL, NoSQL.

Platforms and Frameworks: React.js and Node.js for frontend, Tailwind CSS for styling, Spring Boot for backend management.

Databases: MySQL for relational data storage and MongoDB for handling flexible data requirements.

Prerequisites

1. Frontend Development: Experience with VS Code, Tailwind CSS, React.js, and Node.js.

2. Backend Development: Knowledge of Spring Boot, Kotlin, Java, JPA, and Hibernate for backend functionality.

3. Database Knowledge: Proficiency in SQL or NoSQL with experience using a database management system.

Workflow

1. Frontend
   - Tool: VS Code, utilizing React.js for building a responsive and accessible user interface.
   - Frameworks: Tailwind CSS and React.js to ensure a user-friendly, visually appealing design.

2. Backend
   - Tool: IntelliJ IDEA, primarily using Kotlin for the backend code.
   - Framework: Spring Boot will support core backend features and streamline data handling.
   - Database Integration: Use JPA and Hibernate for seamless connection with MySQL and MongoDB databases.

3. API and Data Testing
   - Tools like Postman will be used to validate API endpoints, while console logs can assist in real-time data verification.

Expected Challenges

1. Designing a User-Friendly Interface:
   - Frequent testing and feedback collection from users during development to improve the UI and UX.

2. Visual Consistency:
   - Choosing clear, readable fonts, colors, and layouts for a cohesive design.

3. Data Transfer Optimization:
   - Minimizing unnecessary data transmissions to improve website speed and efficiency.

4. Security and Data Protection:
   - Implement security protocols to prevent vulnerabilities such as SQL injection attacks, safeguarding user data.

5. Bug Resolution and Error Handling:
   - Continuously monitor and fix bugs for a stable and user-friendly website.

6. Responsive Design:
   - Ensure website compatibility across different screen sizes and devices to improve accessibility.

Benefits of the Project

Developers involved in life Blood will gain hands-on experience with real-time data processing and REST API implementation. This project offers practical experience in addressing real-world needs, handling secure data management, and developing scalable solutions for a community-oriented platform.

Project Submitted to: Amit Saha.
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