

Project Proposal: LifeBlood – A Web-based Blood Donor Search Platform

Project Title:

LifeBlood – A Web Application for Searching and Managing Blood Donor Information

Introduction:

Blood donation saves millions of lives each year. However, in times of emergency, finding a suitable and nearby donor becomes extremely challenging. “**LifeBlood**” is a web-based platform designed to bridge this gap by connecting blood seekers with potential blood donors in the fastest, most reliable, and organized manner.

This system allows users to register as donors, store their donation records, and temporarily make themselves unavailable for four months post-donation. A seeker can search for donors by blood group and location, and the system will display a sorted list of donors starting from nearest available ones to farthest. The system also facilitates direct communication between seekers and donors.

Scope:

The scope of **LifeBlood** includes the following:

- A secure platform where users can register as blood donors.
- Search functionality that allows users to find donors by blood group and location.
- Automatic unavailability of donors for **4 months** after a donation.
- Real-time updating of donor availability.
- A communication channel through contact details to facilitate quick interaction.
- Role-based access for users and administrators.

- Location sharing for the donation.
 - Location-aware filtering to ensure quick access to nearest possible donors.
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Objectives:

- To create a user-friendly web platform for searching and registering blood donors.
 - To maintain a database of active and inactive donors.
 - To provide accurate, fast, and filtered results based on blood group and geographical distance.
 - To ensure a secure authentication system for all users.
 - To help hospitals, emergency services, and individuals find blood quickly and efficiently.
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Users and Their Roles:

Anonymous Users:

- Can search for available donors by providing blood group and location.
- Can view contact information of donors.
- Can register to become a donor or recipient.

Registered Users (Donors/Recipients):

- Can log in to the system with authentication.
- Can register/update their donor profile with blood group, address, contact info, and last donation date.
- Donors will be automatically marked unavailable for **4 months** after each donation on the basis of confirmation.
- Can view the search history and manage their profiles.

- Can share the donation place to the donor after confirmation.

Admin User:

- Manages the system.
 - Can verify, disable, or remove user accounts.
 - Can update blood group information, donor status, or flag false users.
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Use Cases:

1. User Registration:

- Users provide name, email, password, blood group, contact, and location to register.
- System stores the user as a donor/recipient.

2. Search Donor:

- User selects a blood group and then location.
- System shows a list of available donors starting from the nearest location, excluding temporarily unavailable ones.

3. Add/Update Donation Record:

- Registered donor logs recent donation.
- System updates “last donated date” and marks donor unavailable for 4 months.

4. Automatic Donor Availability Management:

- System checks donation date and auto-updates availability after 4 months.

5. Login/Authentication:

- All users must log in to access profile, donation logs, and search features.

6. Admin Actions:

- View all users.
- Temporarily disable, verify, or remove suspicious users.

Technologies:

- **Frontend:**
 - HTML, CSS, JavaScript, PrimeFaces (JSF)
- **Backend:**
 - Java EE (EJB, CDI)
 - Hibernate (JPA)
 - JTA (for transactions)
- **Build Tool:**
 - Maven
- **Web Server:**
 - WebLogic 11g
- **Database:**
 - MySQL

Special Features:

- Search optimization by blood group.

- Location-based donor sorting (distance-aware).
- Auto cooldown for donors (4 months after donation).
- Easy communication through visible contact details.
- Secure authentication for all users.
- Donation location will be shared to the donor for convenience.

Conclusion:

LifeBlood aims to revolutionize the process of finding blood donors by making it swift, easy, and geographically optimized. With the power of digital connectivity, it will help individuals and institutions reach out to lifesavers when it matters most.