
Software Requirements Specification

For

HaemoLink

Version 1.0 Approved

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1. Introduction

1.1 Purpose

Introducing "HaemoLink," a groundbreaking mobile application that revolutionizes blood donation and connects nearby blood banks, blood donors, and blood donation camps for a shared social cause. With its user-friendly interface, "HaemoLink" empowers users to swiftly locate the nearest blood bank, access real-time information on blood availability, and effortlessly schedule appointments for blood donations. Through geolocation technology, donors are promptly notified of nearby blood donation camps, facilitating maximum participation and addressing urgent blood supply needs. Furthermore, "HaemoLink" fosters a compassionate community by allowing donors to share their experiences, inspiring others to join the lifesaving mission. Together, we can make a significant impact on countless lives and forge a cohesive network of lifesavers, as we uphold the essence of humanity in the face of adversity.

1.2 Product Scope

After the development of "HaemoLink," the product scope will encompass a fully functional and user-ready mobile application that revolutionizes blood donation. The key elements of the product scope will include:

- 1. User-friendly Interface:** The app will have a user-friendly and intuitive interface that allows users to easily navigate through its features. It will provide a seamless and enjoyable experience for both blood donors and blood banks.
- 2. Real-time Blood Availability:** "HaemoLink" will offer real-time information on blood availability at various blood banks. Users can view the availability of specific blood types and locate nearby centers with the required blood.
- 3. Geolocation Technology:** The app's geolocation feature will enable donors to find nearby blood banks and receive notifications about blood donation camps happening in their vicinity.
- 4. Blood Donation Scheduling:** "HaemoLink" will allow donors to schedule appointments for blood donations at their convenience, making the process more organized and efficient for both donors and blood banks.
- 5. Social Community:** The app will foster a compassionate community of donors, where they can share their experiences, connect with like-minded individuals, and inspire others to participate in the life-saving mission.
- 6. Outreach and Awareness:** "HaemoLink" will actively engage in outreach campaigns and awareness initiatives to promote blood donation and its functionalities. It will collaborate with organizations, hold events, and leverage social media to spread the message.
- 7. Data Privacy and Security:** The app will prioritize data privacy and security, ensuring that users' personal information and medical data are protected at all times.

8. Analytics and Reporting: The app will include analytics and reporting features for blood banks and hospitals. This will help them track blood donation trends, assess donation patterns, and optimize their operations based on data-driven insights.

9. Multi-Platform Availability: "HaemoLink" will be available on multiple platforms, such as iOS and Android devices, to maximize accessibility to a broader user base.

10. Collaboration with Blood Banks: The app's effectiveness will rely on collaboration and cooperation with blood banks and hospitals in providing real-time blood availability data and maintaining a steady supply.

11. Regular Updates and Improvements: After the initial development, the product scope will continue to evolve with regular updates and improvements based on user feedback and changing requirements.

In summary, the product scope of "HaemoLink" after development will encompass a comprehensive and user-centric mobile application that empowers users to make a significant impact on blood donation and healthcare. By connecting donors and blood banks, the app aims to streamline the blood donation process, save lives, and foster a compassionate community of lifesavers.

2. Overall Description

2.1 Product Perspective

"HaemoLink" is a new and self-contained mobile application designed to revolutionize blood donation. It serves as a dedicated platform connecting blood banks, donors, and donation camps. The app's user-friendly interface enables swift access to nearby blood banks, real-time blood availability, and easy appointment scheduling. Through geolocation technology, donors receive prompt notifications about nearby donation camps. The app operates independently, with external interfaces facilitating seamless data exchange between donors and blood banks/hospitals. "HaemoLink" aims to streamline blood donation and foster a compassionate community of lifesavers.

2.2 User Classes and Characteristics

In the near future, once "HaemoLink" is fully developed and launched, a diverse range of individuals and organizations will be able to use this groundbreaking app to make a significant impact on the world of blood donation and healthcare. Here are some of the key users who will benefit from "HaemoLink":

1. Blood Donors: The primary beneficiaries of the app will be blood donors. "HaemoLink" will empower these individuals to actively participate in the lifesaving mission by making blood donation more accessible and convenient. Donors will be able to use the app to locate nearby blood banks and donation camps, view real-time information on blood availability, and easily schedule appointments for donation. The app will also allow them to track their donation history, share experiences, and inspire others to join the cause, fostering a sense of pride and purpose in their contributions to the community.

2. Blood Banks and Hospitals: "HaemoLink" will serve as a valuable tool for blood banks and hospitals, enabling them to maintain a steady and reliable blood supply. By connecting with donors and sharing real-time information on blood availability, blood banks can efficiently manage their inventory and respond to emergency situations promptly. The app will also help them organize blood donation camps more effectively by notifying potential donors in the vicinity, ensuring maximum participation and a higher chance of meeting blood supply demands.

3. Healthcare Professionals: Medical practitioners, including doctors, nurses, and other healthcare professionals, will also benefit from "HaemoLink." The app's real-time blood availability feature will assist them in identifying suitable blood matches for patients in need of transfusions, ensuring timely and appropriate treatment. This can be particularly critical in emergency situations where quick access to compatible blood can be a matter of life and death.

4. Organizations and NGOs: Non-governmental organizations (NGOs) and other philanthropic organizations focused on healthcare and social welfare will find "HaemoLink" to be a valuable tool for coordinating blood donation drives and events. The app's geolocation technology will help these organizations target specific regions with urgent blood supply needs, maximizing their outreach and impact.

5. General Public and Community Members: Even individuals who are not direct donors can play a vital role in supporting "HaemoLink's" mission. By spreading awareness about the app and its purpose, the general public can help create a strong network of blood donors and ensure that lifesaving information reaches those who need it the most. Additionally, community members may provide feedback and suggestions to improve the app's functionality and effectiveness.

In conclusion, "HaemoLink" has the potential to unite a diverse group of individuals and organizations, all driven by a shared social cause to save lives through blood donation. The app's user-friendly interface and innovative features will empower donors, blood banks, healthcare professionals, NGOs, and the general public alike to come together and uphold the essence of humanity in the face of adversity. As the app gains traction and its user base grows, it will undoubtedly become an essential tool in the field of healthcare, making a lasting impact on countless lives worldwide.

3. System Features

The key features of the "HaemoLink" app that make it a groundbreaking and revolutionary tool for blood donation are as follows:

1. Blood Bank Locator: Utilize geolocation technology to help users find the nearest blood banks and their contact information. This feature ensures that potential donors can easily access blood donation facilities.

2. Real-Time Blood Availability: Provide real-time information on blood availability at registered blood banks. This crucial data empowers users to make informed decisions about their donations and increases the likelihood of successful matches for patients in need.

3. Notification for Blood Donation Camps: Promptly alert donors to nearby blood donation camps through geolocation technology. This feature facilitates maximum participation during emergencies and urgent blood supply needs.

4. Donor Profiles: Enable users to create personal profiles, which include relevant health information and donation history. This feature helps blood banks and medical professionals better assess donor suitability and ensures a safe donation process.

5. Blood Type Compatibility: Allow users to input their blood type in their profile, which can be used to determine their compatibility with specific blood donation requests or emergency cases.

6. Notification and Reminders: Send timely notifications and reminders to users about upcoming donation appointments, nearby blood donation camps, and urgent blood supply needs.

7. Privacy and Security: Implement strong privacy measures to protect users' personal information and ensure a secure donation experience.

8. User Feedback and Ratings: Enable users to provide feedback and rate their donation experiences and interactions with blood banks, helping improve the overall blood donation process.

These key features work together to create a comprehensive and user-friendly platform that connects blood banks, donors, and blood donation camps, making it easier for people to participate in the lifesaving mission of blood donation.

4. Functional Requirements

1. User Registration and Profiles:

- Users should be able to create accounts with their personal information.
- User profiles should include details like blood type, contact information, and donation history.

2. Location-Based Services:

- The app should use geo-location to identify the user's current location.
- Users should be able to view nearby blood banks, donation camps, and donors.

3. Blood Bank Information:

- Display a list of nearby blood banks with contact details, operating hours, and blood availability status, medical officer name and contact information.

4. Donor Matching:

- Enable users to request blood and find potential donors with matching blood types.

5. Blood Donation Camps:

- Display information about upcoming blood donation camps, including location, date, and time.
- Allow Blood Camp Organizing Committee to register their camps in the portal.

6. Feedback and Support:

- Provide a feedback mechanism for users to report issues or suggest improvements.
- Offer customer support for inquiries and assistance.

5. Non-Functional Requirements

1. Performance:

- The app should respond quickly to user interactions, with minimal loading times.
- It should be able to handle a large number of concurrent users during peak times, such as emergencies or campaigns.

2. Scalability:

- The architecture should be scalable to accommodate future growth in terms of users, data, and features.

3. Reliability:

- The app should be highly reliable and available 24/7, as blood supply needs can be urgent.
- Implement redundancy and fail over mechanisms to minimize downtime.

4. Security:

- Ensure robust data encryption and secure user authentication.
- Comply with data protection regulations and best practices for healthcare data.

5. Usability:

- The user interface should be intuitive and user-friendly to cater to users of all ages and backgrounds.
- Conduct usability testing to identify and address any usability issues.

6. Compatibility:

- The app should work seamlessly on a variety of devices and screen sizes.
- Ensure compatibility with different versions of Android and iOS.

7. Error Handling:

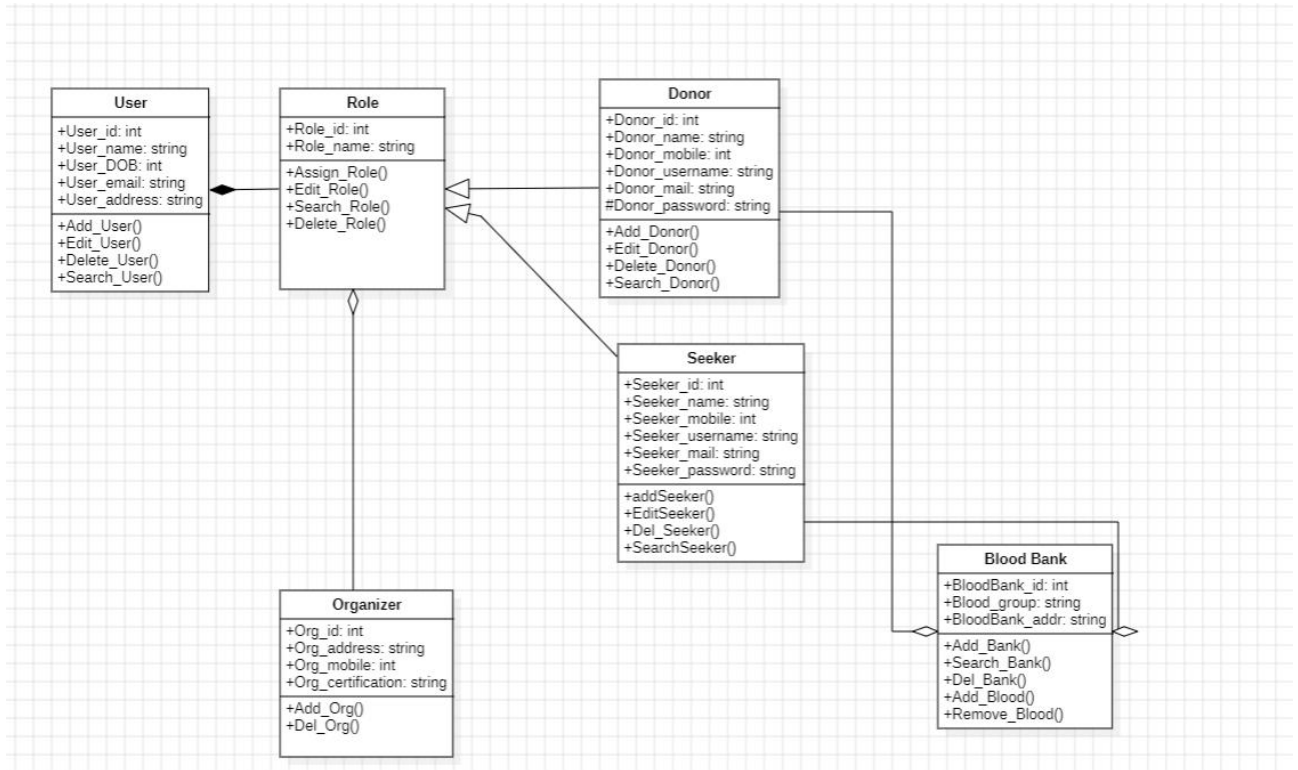
- Implement effective error handling to provide users with clear error messages and guide them in troubleshooting issues.

8. Scalable Hosting:

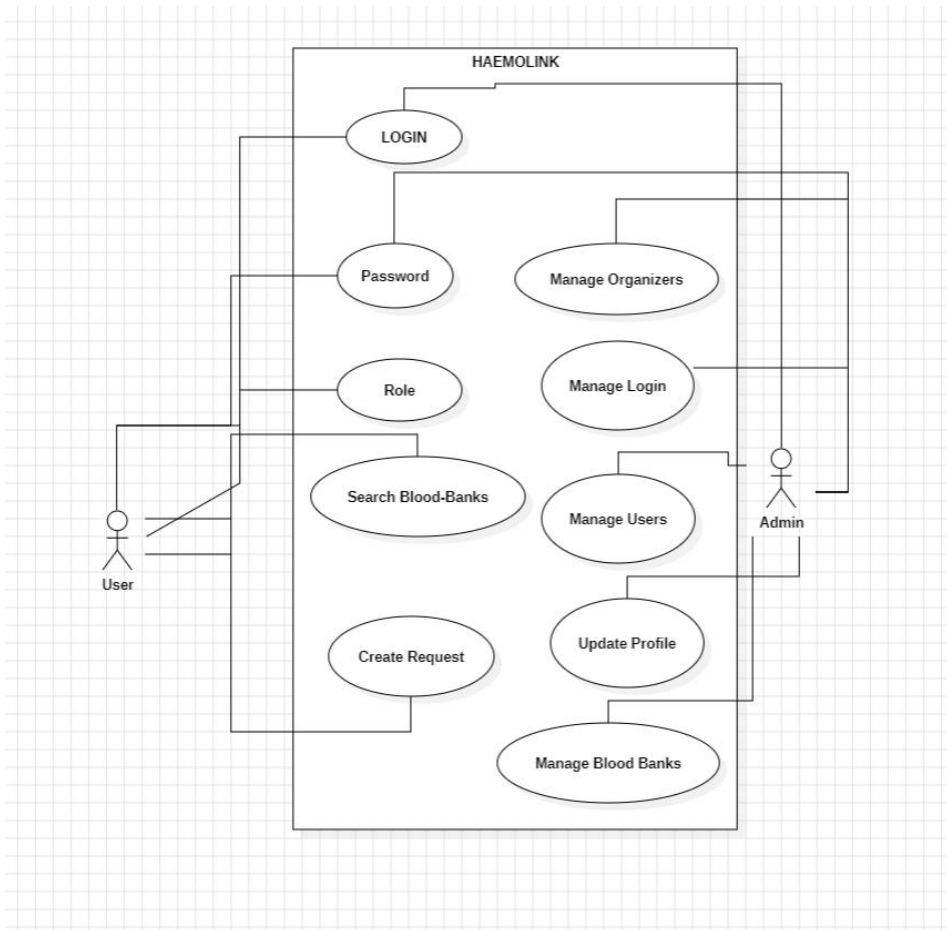
- Ensure the hosting infrastructure can scale dynamically to accommodate increased traffic and data storage needs.

6. UML Diagram:

1. Class Diagram:



2. Use Case Diagram:



7. Entity Relationship Diagram(ERD):

