
Software Requirements Specification

for

Online Blood Donor's Database Management System

Version 1.0 approved

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Revision History

Name	Date	Reason For Changes	Version

1. Introduction

1.1 Purpose

The Online Blood Donors Database Management System .Software Requirements Specification (SRS) document outlines the requirements for the development of a web-based platform that connects blood donors with individuals in need of blood donations. This document serves as a reference for developers, project managers, and stakeholders involved in the The Online Blood Donors Database Management System project.

1.2 Document Conventions

This document follows standard document conventions for clarity and consistency. Priority levels for requirements are indicated as High, Medium, or Low. Additionally, requirements are identified by a unique identifier (e.g., REQ-1) for reference.

1.3 Intended Audience and Reading Suggestions

This SRS is intended for developers, project managers, marketing staff, users, testers, and documentation writers. Readers are advised to begin with the overview sections (Sections 1 and 2) before delving into specific sections that are relevant to their roles.

1.4 Product Scope

The "Online Blood Donor Database Management System" is a virtual platform where people can find the required donors online through this web application, and they can contact each other. Our project aims to foster a strong relationship between people who needs blood on emergency basis and blood donors, operating similarly to an online NGO corporation^[2]. Our ultimate milestone is to allow both people who needs blood on emergency basis and blood donors to create profiles with proper verification. The purpose of this website is to assist the most needy people in our society by providing them with blood as soon as possible.

1.5 References

- [1] Fundamentals Of Software Engineering By Rajib Mal
- [2] Blood Donors Blood Donation Related Rules From WHO(World Health Organization)Website[www.who.int]

2. Overall Description

2.1 Product Perspective

Our aim is to address the blood crisis in our society. Our project aims to create strong bonds between donors and requesters based on their specific needs. This initiative has the potential to save many lives.

2.2 Product Functions

The major functions of the OBDDMS include:

- *User registration and login for blood donors and blood needy individuals.*
- *Profile management for users.*
- *Users can authenticate themselves through an OTP verification system sent via email.*
- *Search functionality for blood needy individuals to find suitable blood donors.*
- *Reporting system for users to report any issues or concerns.*
- *Admin dashboard for monitoring and managing users, reports, and system metrics.*

2.3 User Classes and Characteristics

1. **Blood Donors:** *Individuals willing to donate blood.*
2. **Blood Needy Individuals:** *Individuals in need of blood donations.*
3. **Admin:** *Administrators responsible for managing the platform.*

Characteristics of each user class vary based on their roles and privileges within the platform.

2.4 Operating Environment

The Online Blood Donors Database Management System operates in a web-based environment. It is compatible with modern web browsers such as Chrome, Firefox, Microsoft Bing, Brave, Safari etc. and requires internet connectivity greater than 2mbps. The server-side components will be hosted on a specified web server^[1].

2.5 Design and Implementation Constraints

Constraints include:

- *Users must meet specific eligibility criteria for blood donation.*
- *Security and privacy standards must be followed.*
- *The system must be designed to handle potentially sensitive medical information.*

2.6 User Documentation

User documentation, including user manuals and on-screen help, will be provided along with the software to guide users in utilizing the platform effectively.

3. External Interface Requirements

3.1 User Interfaces

In this project, we can use HTML to structure our website. CSS will help us implement various styles, while JavaScript will add logical functionality. Bootstrap can assist in applying a styling framework, and PHP and MySQL will enable us to store all the data for our project.

3.2 Hardware Interfaces

To use our platform, you will need a standard web browser such as Google Chrome, Microsoft Edge, Mozilla Firefox, or Safari, as well as a moderate internet connection.

3.3 Software Interfaces

The Online Blood Donors Database Management System interfaces with web servers, databases, and may incorporate third-party services for email communication and must needed high speed internet connectivity.

3.4 Communications Interfaces

The system will use standard web communication protocols (e.g., HTTP) for user interactions. Email notifications will be sent using email communication protocols (e.g., SMTP).

4. System Features

4.1 User Interface

4.1.1 Description and Priority

The user interface provides an engaging homepage with a navigation bar, motivational quotes, and links to user-specific login/signup pages.

4.1.2 Stimulus/Response Sequences

Users can navigate through the interface, access registration/login forms, and explore the platform.

4.1.3 Functional Requirements

REQ-1: For Header Section:-

Logo :- Our platform's logo serves as a unique identifier.

Navigation Links:- A set of essential links is provided for quick access to key sections such as Home, About Us, and Contact Us.

User Segmentation: The user base is categorized into three segments: Blood Donors, Blood Needy Individuals, and Admin. Separate login/signup options are provided for each.

REQ-2: For Body Section (Home Page/Landing Page):-

- *The main body of the home page showcases an engaging image related to blood donation. Accompanying this image are motivational quotes designed to inspire visitors and encourage them to explore our platform and join as members.*
- *For Blood Donors: A direct link is incorporated beneath the quote, leading them to the login/signup page tailored for blood donors.*
- *Similarly, for Blood Needy Individuals: A distinct link is placed to guide them to their respective login/signup page.*

REQ-3: For Footer Section:-

- *The footer section will feature a set of convenient quick links, including Home, About Us, Contact Us, Terms And Conditions, and Privacy Policies.*
- *To enhance our platform's visibility and engagement, social media icons will be incorporated, allowing users to connect with us through various social channels.*
- *A copyright symbol will be displayed to safeguard our content and address copyright concerns.*
- *Our email address will be prominently provided, offering users a direct and immediate means to contact us via email.*

REQ-4:- For Contact Us :-

- *This section includes a dedicated feedback form where users can share their experiences with our project.*

REQ-5:- For Anonymous Users/Non Verified Users(Blood Needy Individuals and Blood Donors):-

- *Non-logged in users will have access to specific sections, including our landing page, motivational quotes, the 'About Us' page, and the 'Contact Us' page.*

- *Blood Needy Individuals who are not logged in will not be permitted to search for blood donors through the platform.*
- *Similarly, non-logged in Blood Donors will not be able to initiate blood donations until they have logged in.*

4.2 User Registration

4.2.1 Description and Priority

Users can register as blood donors or blood needy individuals, providing necessary details.

4.2.2 Stimulus/Response Sequences

Users fill out registration forms, receive verification emails, and enter OTPs for validation.

4.2.3 Functional Requirements

REQ-6:- For Logged In Users/Verified Users (Blood Needy Individuals and Blood Donors):-

- *Verified and logged in Blood Donors will have the ability to register their names within our blood bank, contributing to the availability of blood for those in need.*
- *Verified and logged in Blood Needy Individuals will have the privilege to search for the required blood donors and establish contact as necessary.*

REQ-7 For Signup for Blood Needy People:-

- *Upon clicking the signup button, a registration window will open for individuals in need of blood.*
- This registration form will include the following fields:-
 - *Name*
 - *Email Id*
 - *Phone Number*
 - *Address*
 - *Pin Code*

- *Blood Group*
- *State*
- *City*
- *Picture Upload*
- *Password*
- *Confirm Password*
- *Once the form is completed, users can click on the verification button. Subsequently, a unique one-time password (OTP) will be sent to the user's email. Simultaneously, a pop-up window will appear, allowing the user to input the received OTP.*
- *If the entered OTP matches the one sent to the user's email, they will be successfully redirected to Login window. In case of a mismatch, users will need to re-enter their details in the same manner as before.*

REQ-8 For Signup for Blood Donors:-

- *An age field can be added including a constraint of below 18.*
- *The rest process is a replica of the previous process*

REQ-9 For Log In For Blood Donors:-

- *Once the signup process is completed, donors can log into their profiles by entering their registered email id and password.*
- *If the provided credentials match, donors will be successfully redirected to the Welcome window. However, if there is a mismatch, users will need to re-enter their details in the same manner as before.*

REQ-10 For Log In For Blood Needy People:-

- *This process is a replica of the previous login process.*

4.3 User Features**4.3.1 Description and Priority**

After registering users as Blood Donors Or Blood Needy Individuals they can get some specific features which helps them to interacting for the further processes.

4.3.2 Stimulus/Response Sequences

In the feature for blood donors, they can maintain their profiles or hide them from others after donating blood. Additionally, a search facility is implemented for requesters, allowing them to search for the required donors for blood donation.

4.2.3 Functional Requirements

REQ-11 For Features For Blood Donors:-

- *Upon entering this phase, a welcome message will be displayed in the header section, along with the donor's name.*
- *The left side of the welcome page features a side navigation bar with the following options:-*
 - *View Profile: - Allows donors to view their profile (read-only mode).*
 - *Edit Profile :- Enables donors to edit their profile (read and write access).*
 - *Change Password :- Requires proper verification for updating the password.*
 - *Change the availability for donate the blood :- Details for this option are provided below.*
- *Blood Donation Eligibility Criteria (All the options can be visible in the availability tab):- The availability tab includes the rules for blood donation, which encompass.ⁱⁱⁱ*
 - *Age between 18-60 years*
 - *Hemoglobin not less than 12.5gm/DI*
 - *Pulse Between 50 and 100/min with no irregularities.*
 - *Blood pressure-systolic 100 to 180 mm Hg and Diastolic 50 to 100 mm Hg.*
 - *Temperature-normal*
 - *Body weight not less than 45k.g*
 - *Any healthy adult both male and female can donate blood in every 3 months.*
 - *Donors should not have any conical disease.*
- *After carefully reviewing the above guidelines, donors can decide whether they are eligible for blood donation. If they meet the criteria, they can click on the "Availability" button.*
- *The functionality of the "Availability" button is to either hide or reveal their profile based on their current availability status.*

REQ-11 For Features For Blood Needy People:-

- *Upon entering this phase, a welcome message will be displayed in the header section, along with the donor's name.*
- *The left side of the welcome page features a side navigation bar with the following options:-*
 - *View Profile: - Allows donors to view their profile (read-only mode).*
 - *Edit Profile :- Enables donors to edit their profile (read and write access).*
 - *Change Password :- Requires proper verification for updating the password.*
 - *Search Donors:- Allows Blood Needy People to search for potential donors.*
- *After clicking the "Search Donors" option, two input fields are displayed: "Enter Pin Code" and "Enter Blood Group".*
- *The next step is to press the search button to find all the donors that match the specified criteria.*
- *Based on the provided credentials, profiles of potential donors are shown to the requester.*
- *To contact their chosen donor, the requester initiates the contact process.*
- *An auto-generated request email, along with the requester's profile, is sent to the donor's email as a link. If the donor is willing to help, they can click on the link to send an acceptance message. Simultaneously, the donor's contact number will be shared with the requester.*
- *If any malpractice occurs, needers are encouraged to report their concerns through the 'Report Donor' section.*
- *Donors can follow the same process by clicking on the 'View Profile' link in the acceptance email. In the requester's profile, a 'Report' button will also be provided.*

4.4 Admin Features**4.4.1 Description and Priority**

There will be one specific admin in our website after logged in he is permitted to enter into admin panel where he can maintain users activity.

4.3.2 Stimulus/Response Sequences

In the feature for admin, they can maintain their profiles. Additionally, admin can maintain all the activities done by all the donors and needers. Also the admin can check all the reports and taking further actions.

4.2.3 Functional Requirements

REQ-12 For Admin:-

- *Upon entering this phase, a welcome message will be displayed in the header section, along with the admin's name.*
- *The left side of the welcome page features a side navigation bar with the following options:-*
 - *Dashboard:- This section displays three key metrics: "Total Donors," "Total Requesters," and "Total Reports."*
 - *View Profile: - Allows donors to view their profile (read-only mode).*
 - *Edit Profile :- Enables donors to edit their profile (read and write access).*
 - *Change Password :- Requires proper verification for updating the password.*
 - *View All Donors:- Stores details of all donors.*
 - *View All Requesters:- Stores details of all requesters.*
 - *View All Reports:- Stores all reports, including date and time information.*
- *The admin can review all reports submitted by donors and requesters and verify their accuracy.*
- *If the reports are deemed accurate, an auto-generated warning message is sent to the respective donor's or requester's email.*
- *The admin can issue this warning message by clicking the "SEND WARNING" button, located between the "View All Donors" and "View All Requesters" sections.*

5. Other Nonfunctional Requirements^[i]

Nonfunctional requirements (NFRs), also known as quality attributes or software qualities, are essential in software engineering. They define the overall behavior, performance, and user experience of a software system. In addition to the commonly mentioned NFRs like performance, security, and scalability, there are several other nonfunctional requirements that are crucial in software engineering:

5.1 Usability:

Usability encompasses factors such as user interface design, user experience (UX), and user-friendliness. It measures how easy it is for users to interact with and navigate the software.

5.2 Reliability:

Reliability refers to the software's ability to consistently perform its intended functions without failures or errors. It includes aspects like fault tolerance, error recovery, and system stability.

5.3 Availability:

Availability defines the percentage of time a system is operational and accessible to users. High availability is critical for mission-critical systems that must be accessible 24/7.

5.4 Maintainability:

Maintainability assesses how easily and cost-effectively the software can be updated, modified, or repaired. It includes factors like code readability, modularity, and documentation.

5.5 Portability:

Portability evaluates how easily the software can be adapted to different environments, platforms, and operating systems. It's essential when software needs to run on various devices or migrate between systems.

5.6 Scalability:

Scalability refers to the software's ability to handle increased workloads and user demands. It involves horizontal scalability (adding more servers) and vertical scalability (upgrading existing hardware or software components).

5.7 Performance Efficiency:

While performance is a common NFR, it can be broken down further into aspects like response time, throughput, and resource utilization. Performance efficiency ensures that the software meets specific performance benchmarks.

5.8 Data Integrity and Privacy:

For applications that handle sensitive data, data integrity and privacy are critical. Ensuring that data is secure, encrypted, and protected from unauthorized access is essential.

5.9 Safety:

In safety-critical systems, such as medical devices or autonomous vehicles, safety requirements are paramount. These requirements focus on preventing accidents and minimizing risks.

5.10 Business Rules^[iii]

It Includes the rules for blood donation, which encompass:

- *Age between 18-60 years*
- *Hemoglobin not less than 12.5gm/Dl*
- *Pulse Between 50 and 100/min with no irregularities.*
- *Blood pressure-systolic 100 to 180 mm Hg and Diastolic 50 to 100 mm Hg.*
- *Temperature-normal*
- *Body weight not less than 45k.g*
- *Any healthy adult both male and female can donate blood in every 3 months.*
- *Donors should not have any conical disease.*

6. Other Requirements

1. Calls to donors and blood recipients cannot be made between 12 A.M. and 5 A.M.
2. There is no real-time chat system present in our project.
3. There is no payment gateway for receiving funds from users.

Appendix A: Glossary

1. SRS :- Software Requirement Specification
2. NGO :- Non-Governmental Organization
3. REQ :- Requirement
4. OBDDMS: Online Blood Donor's Database Management System
5. OTP :- One Time Password
6. HTTP :- Hyper Text Transfer Protocol
7. SMTP :- Simple Mail Transfer Protocol
8. D.I :- Diabetes insipidus
9. H.G :- Hyperemesis gravidarum
10. K.G :- Kilogram
11. M.M :- Millimeter
12. NFR :- Non Functional Requirements
13. UX :- User Experience