Technical Specifications

1. System Overview

The proposed system is a web-based blood management system developed using the Django framework. The system allows administrators and hospitals to manage blood inventory data through a centralized platform.

The system supports two user roles:

- Administrator
- Hospital

The system focuses solely on blood inventory management and hospital account management.

2. User Roles and Functional Requirements

2.1 Administrator

The administrator manages system data and hospital accounts.

Administrator functionalities:

- Login and logout
- Create and manage hospital accounts
- Activate or deactivate hospital access
- View all hospital blood inventory records
- Manage basic system data (blood types)

2.2 Hospital

Hospitals update and manage their own blood inventory.

Hospital functionalities:

- Login and logout
- View their own blood inventory
- Add blood stock records
- Update blood quantity
- Delete blood stock records
- Update hospital profile information

3. Functional Requirements Summary

The system shall:

- Provide secure authentication for admins and hospitals
- Allow administrators to manage hospital users
- Allow hospitals to manage blood inventory records
- Store all data in a centralized MySQL database
- Restrict system access based on user roles

4. Non-Functional Requirements

4.1 Usability

- Simple user interface designed with HTML and CSS
- Clear navigation and minimal design
- Accessible via standard web browsers

4.2 Performance

- Support basic multi-user access
- Load pages within reasonable time under normal usage

4.3 Security

- Password encryption using Django authentication
- Role-based access control
- Basic input validation

4.4 Reliability

- Data stored consistently in the database
- Basic error handling for invalid inputs

5. System Architecture

The system follows a basic three-layer architecture:

1. Presentation Layer
    - HTML and CSS templates rendered by Django
2. Application Layer
    - Django views, models, and URL routing
    - Logic for managing users and inventory
3. Data Layer
    - MySQL relational database

6. Database Design

The system database includes the following tables:

Admin

- User ID
- Username
- Password

Hospital

- Hospital ID
- Hospital name
- Email
- Contact number
- Account status

BloodInventory

- Inventory ID
- Hospital ID
- Blood type
- Quantity
- Last updated

7. Development Constraints

- No donor-side features
- No blood request or emergency modules
- No mobile application
- No advanced UI frameworks
- Designed for small-scale use

8. Future Enhancements

- Future improvements may include:
- Blood request management
- Donor registration
- Email notifications
- UI enhancement using frontend frameworks