# Blood Bank Management System – Project Report

## 1. Introduction

This report is about the Blood Bank Management System project. The goal of this project is to make the work of a blood bank easier and faster. It helps to keep records of blood donors, available blood, and people who need blood. The system gives quick and easy access to this important information.

## 2. Background of the Project

**Problem and Reason**

Many blood banks and hospitals still use paper to keep records. This causes problems like missing data, mistakes, and delays. These problems can be dangerous in emergencies when blood is needed quickly.

So, this project was started to create a digital system that keeps all the records in one place and makes everything easier to manage.

## 3. Objectives

- Make a system that stores all donor and patient information.
- Keep track of how much blood is available.
- Help search for blood types quickly.
- Reduce manual errors and save time.
- Make sure the data is safe and easy to access.

## 4. Scope

**What is included:**
- Adding and managing donor information
- Managing blood inventory
- Searching for available blood
- Admin panel to control system

**What is not included:**
- Connecting with other hospital systems

- Delivery tracking
- Advanced features like AI or data predictions

## 5. Related Work

- Some websites and apps also help find blood donors, but they don't work well with hospitals.
- This project uses ideas from programming and design models to make a better and more useful system.
- It uses methods like CRUD (Create, Read, Update, Delete) and object-oriented design.

## 6. Method Used

**Tools and Technologies**
- Programming: Python or Java
- Database: MySQL
- Web: HTML, CSS, JavaScript
- Framework: Django or Spring Boot

**Steps of Work**
1. Collecting system needs
2. Making diagrams and designs
3. Creating database
4. Writing the code
5. Testing everything
6. Final checking and report

**Designs Used**
- Use-case diagram
- Class diagram
- Sequence diagram
- Data flow diagram

## 7. How It Was Built

The system was made using framework. It has different parts for donors, blood storage, patients, and admins.

### 1. Set Up the Development Environment

- Install **XAMPP** or **WAMP** to run PHP and MySQL locally.
- Start **Apache** and **MySQL** from the control panel.

- Create a new folder in `htdocs` (for XAMPP) named `blood_bank`.

## 2. Create the MySQL Database

- Open **phpMyAdmin** (http://localhost/phpmyadmin).
- Create a new database named: `blood_bank_db`.
- Create tables like:
    - `donors` (id, name, blood_group, phone, email, address, date_registered)
    - `recipients` (id, name, required_blood_group, contact_info, date_requested)
    - `blood_inventory` (id, blood_group, quantity)
    - `admin` (id, username, password)

## 3. Connect to the Database (db.php)

## 4. Create Donor Registration Page (`register_donor.php`)

## 5. View Donor List (`view_donors.php`)

## 6. Handle Blood Requests (`request_blood.php`)

## 7. Admin Panel

## 8. Add CSS

## 9. Test the System

The system is built in layers to keep everything organized. The database has tables for users, blood records, and more.

## 8. Results
- The system works as expected.
- Users can register, request blood, and check availability.
- Admins can see reports and manage the system easily.
- The site works on both computer and phone.

## 9. Problems and Solutions
**Problems:**
- Making a good database took time.

- Handling form errors was hard at first.
- Updating data from many users at once needed care.

**Solutions:**
- Improved the database design.
- Added clear error messages.
- Used tools to handle data safely from many users.

## 10. Conclusion

This Blood Bank Management System helps save lives by making blood donation and request easier and faster. It replaces the old manual system and makes sure the work is done in a better and safer way.

## 11. Future Improvements

- Add SMS or email alerts
- Connect with national donor systems
- Create a mobile app
- Track blood delivery in real time