

## BLOOD DONATION AND DONOR MANAGEMNET SYSTEM

A MINI-PROJECT REPORT Submitted by

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**BONAFIDE CERTIFICATE**

Certified that this project “TAXI MANAGEMENT SYSTEM” is the bonafide work of “KAMALESH V, JOEL ALEX RAJ D” who carried out the project work under my supervision.

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This mini project report is submitted for the viva voce examination to be held on

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INTERNAL EXAMINER EXTERNAL EXAMINER

#### ABSTRACT

The Blood Donation and Donor Management System is a desktop-based application developed using Java Swing and MySQL to streamline the operations of a blood bank. The system enables easy management of donor records, blood inventory, and hospital blood requests by providing an integrated and user-friendly admin dashboard. Donors can be registered, and their donation history is tracked with automatic updates to the inventory. Hospitals can request blood units, and the admin can approve or reject requests based on availability. The system reduces manual errors, improves data accuracy, and enhances the efficiency of tracking blood stock levels. Overall, this project aims to provide a reliable and efficient digital solution for

managing blood donation activities and ensuring timely availability of blood units for medical need.

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1. KAMALESH V

2. JOEL ALEX RAJ D

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## CHAPTER 1

### INTRODUCTION

#### 1.1 INTRODUCTION

This chapter provides an overview of the Blood Donation and Donor Management System, its purpose, and the need for digital blood management in hospitals and blood banks. It introduces the concept of donor tracking and inventory monitoring using an automated software solution. Blood donation plays a vital role in saving lives. Managing donors, blood stock, and hospital requests manually often leads to errors and inefficiency. To address these issues, this project implements a computerized system using Java Swing and MySQL to handle all core operations of a blood bank in a structured, user-friendly manner.

#### 1.2 SCOPE OF THE WORK

The project covers donor registration, recording donations, maintaining blood inventory, managing blood requests from hospitals, and providing admin-based dashboard features. It ensures proper monitoring of blood units across different blood groups and supports decision-making with real-time data updates.

#### 1.3 PROBLEM STATEMENT

Traditional blood bank management relies heavily on manual record-keeping, which leads to data loss, delays, and inaccurate inventory tracking. There is no efficient way to check available blood units, verify donor histories, or handle multiple requests systematically. A digital, automated solution is required to overcome these limitations.

## **1.4 AIM AND OBJECTIVES OF THE PROJECT**

The aim of this project is to develop a computerized Blood Donation and Donor Management System using Java Swing and MySQL that efficiently manages donor information, automates blood inventory updates, processes hospital blood requests, reduces manual errors, and provides a user-friendly dashboard for streamlined blood bank operations.

## **CHAPTER 2**

### **SYSTEM SPECIFICATIONS**

#### **2.1 HARDWARE SPECIFICATIONS**

Processor : Intel Core i3 or above

Memory Size : 8GB (Minimum)

HDD : 1 TB (Minimum)

#### **2.2 SOFTWARE SPECIFICATIONS**

- ❑ Operating System: Windows 10/11
- ❑ Programming Language: Java (JDK 17 )
- ❑ IDE: IntelliJ IDEA
- ❑ Database: MySQL Server
- ❑ Connector: MySQL Connector/J
- ❑ Other Libraries: Swing, JDBC, ReportLab (for PDF generation)

## **CHAPTER 3**

### **MODULE DESCRIPTION**

This chapter describes the main modules of the system:

1. **Admin Login Module:** Allows secure login into the system.
2. **Donor Management Module:** Handles donor registration, viewing donors, updating donor information, and recording donations.
3. **Blood Inventory Module:** Automatically updates inventory based on donations and approved requests.
4. **Blood Request Module:** Allows hospitals/organizations to request blood units; admin can approve or reject requests.
5. **Dashboard Module:** Provides an overview of system operations and allows easy navigation between features.

## CHAPTER 4

### SAMPLE CODING

```
package com.bloodbank;

import javax.swing.*;
import javax.swing.table.DefaultTable
eModel;
import java.awt.*;
```

```
import java.sql.Connection;  
  
import  
  
java.sql.PreparedStatement;  
  
import java.sql.ResultSet;  
  
import java.sql.Statement;  
  
import java.util.List;  
  
public class  
  
AdminDashboardForm  
  
extends JFrame {  
  
    private JTable  
  
requestTable;  
  
    private DefaultTableModel  
  
requestTableModel;  
  
    private JButton  
  
btnApprove, btnReject,  
  
btnAddRequest,  
  
btnRefreshRequests;
```

```
private JTable donorTable;

private DefaultTableModel
donorTableModel;

private JButton
btnAddDonor, btnEditDonor,
btnDeleteDonor,
btnRecordDonation,
btnRefreshDonors;

private JTextArea
inventoryArea;

private JButton
btnRefreshInventory,
btnAddUnits;

public AdminDashboardForm() {
    setTitle("Admin Dashboard");
    setSize(950, 600);
    setDefaultCloseOperation(JFrame.
```

```
EXIT_ON_CLOSE);

setLocationRelativeTo(null);

JTabbedPane tabbedPane = new

JTabbedPane();

// Requests Tab

 JPanel requestsPanel = new

 JPanel(new BorderLayout());

requestTableModel = new

DefaultTableModel(new

Object[] {"Request ID", "Hospital",

"Blood Type", "Units", "Status"},

0);

requestTable = new

JTable(requestTableModel);

requestsPanel.add(new

 JScrollPane(requestTable),
```

```
BorderLayout.CENTER);

JPanel requestBtnPanel = new
JPanel();

btnApprove = new
JButton("Approve");

btnReject = new
JButton("Reject");

btnAddRequest = new
JButton("Submit Request");

btnRefreshRequests = new
JButton("Refresh");

requestBtnPanel.add(btnApprove);

requestBtnPanel.add(btnReject);

requestBtnPanel.add(btnAddRequ
est);

requestBtnPanel.add(btnRefreshRe
```

```

quests);

requestsPanel.add(requestBtnPane

I, BorderLayout.SOUTH);

tabbedPane.add("Blood

Requests", requestsPanel);

JPanel donorsPanel = new JPanel(new BorderLayout());
donorTableModel = new DefaultTableModel(new Object[] {"Donor
ID", "Name", "Blood Type", "Age", "Gender", "Contact", "Last Donation", "Units
Donated"}, 0);
donorTable = new JTable(donorTableModel);
donorsPanel.add(new JScrollPane(donorTable), BorderLayout.CENTER);
JPanel donorBtnPanel = new JPanel();
btnAddDonor = new JButton("Add Donor");
btnEditDonor = new JButton("Edit Donor");
btnDeleteDonor = new JButton("Delete Donor");
btnRecordDonation = new JButton("Record Donation");
btnRefreshDonors = new JButton("Refresh");
donorBtnPanel.add(btnAddDonor); donorBtnPanel.add(btnEditDonor);
donorBtnPanel.add(btnDeleteDonor); donorBtnPanel.add(btnRecordDonation);
donorBtnPanel.add(btnRefreshDonors);
donorsPanel.add(donorBtnPanel, BorderLayout.SOUTH);
tabbedPane.add("Donors", donorsPanel);

```

## Sample 2

Sample 2 depicts the booking part of the code, where it displays booking details and enter user data and store it in database

## CHAPTER 5

## SCREEN SHOTS

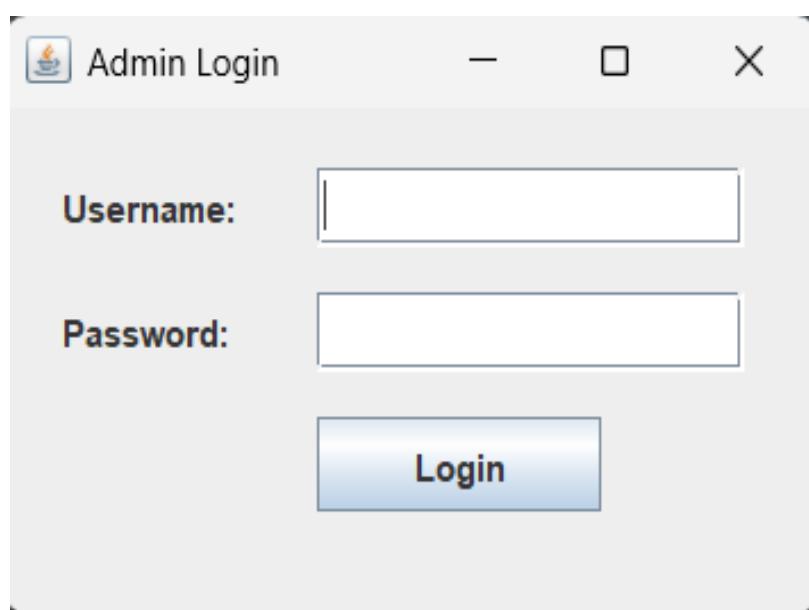


FIG 5.1 ADMIN LOGIN PAGE

Admin Dashboard

- □ X

Blood Requests	Donors	Inventory		
Request ID	Hospital	Blood Type	Units	Status
1	appollo	b+	2	Rejected
2	apollo	B+	2	Pending
3	Srinivasa	A+	2	Approved
4	City Hospital	A+	2	Pending
5	Green Cross	O-	1	Pending
6	Sunrise Clinic	B+	3	Approved
7	Mercy Hospital	AB-	1	Rejected

FIG 5.2 ADMIN DASHBOARD



## Donor Registration



**Name:**

**Blood Type:**

**Age:**

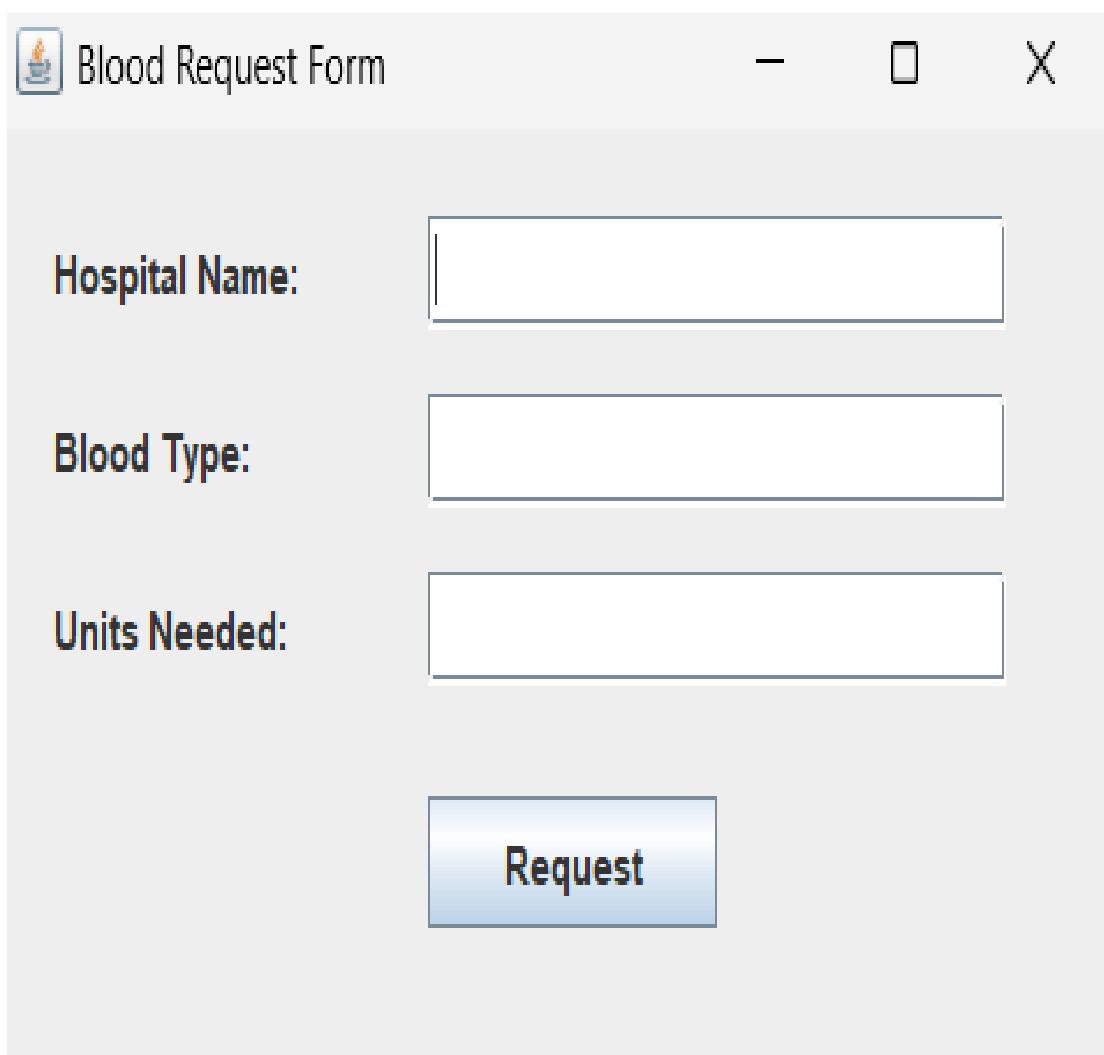
**Gender:**

**Contact:**

**Last Donation (YYYY-MM-DD):**

**Save**

FIG 5.3 DONOR REGISTRATION FORM



A screenshot of a Windows-style application window titled "Blood Request Form". The window contains three text input fields labeled "Hospital Name:", "Blood Type:", and "Units Needed:" followed by a large blue "Request" button.

Blood Request Form

Hospital Name:

Blood Type:

Units Needed:

Request

FIG 5.4 BLOOD REQUEST FORM

FIG 5.5 DONOR TAB

Blood Requests								Donors								Inventory							
Donor ID		Name		Blood Type		Age		Gender		Contact		Last Donation		Units Donated									
3	Kamalesh	A+	19	Male	9874561230	2024-02-14	3																
4	John Doe	A+	30	Male	9876543210	2025-09-01	2																
5	Jane Smith	O-	25	Female	9876543211	2025-08-15	1																
6	Robert Brown	B+	40	Male	9876543212	2025-09-10	3																
7	Emily Davis	AB-	35	Female	9876543213	2025-09-05	2																
8	adam	o	22	male	4512368574	2002-02-02	2																

Add Donor	Edit Donor	Delete Donor	Record Donation	Refresh
-----------	------------	--------------	-----------------	---------

Blood Requests	Donors	Inventory
A- : 2		
A+ : 5		
AB- : 1		
AB+ : 2		
B- : 1		
B+ : 4		
O- : 3		
O+ : 6		

	Refresh Inventory	Add Units
--	-------------------	-----------

FIG 5.6 INVENTORY TAB

## **6. CONCLUSION AND FUTURE ENHANCEMENT**

The Blood Donation and Donor Management System successfully digitalizes key blood bank operations, enabling reliable donor tracking and real-time inventory management.

**Future enhancements may include:**

- SMS/Email notification system
- Multi-user login (Admin, Staff, Hospital)
- Cloud database hosting
- Advanced analytics and reporting
- Web or mobile app extension

## REFERENCES

1. [Java Documentation \(Oracle\)](#)
2. [MySQL Documentation](#)
3. [JDBC Programming Tutorials](#)
4. [Swing GUI Developer Guide](#)
5. [Learning MySQL: A Beginner's Guide — Seyed M.M. & Hugh E. Williams, O'Reilly Media.](#)