Blood Donation Management App

(Project Proposal)

Project Code

Project Advisor

Dr. Muhammad Illyas

Project Manager

Shumaila Zafar (BSAI51S25R028)

Project Team

Shumaila Zafar (BSAI51S25R028)
Rameen Fatima (BSAI51S25R039)
Zobia Shaheen (BSAI51S25R018)

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1. Abstract

- *This project is about creating a simple **Blood Donation Management App** using C++.*
- *The aim of this system is to organize basic tasks like donor registration, patient requests, checking blood availability, and keeping record of donations.*
- *Right now, most of these tasks are being done manually. It becomes slow and confusing, especially when emergency blood is needed. Our system will help manage all these records in a simple, clear, and fast way.*

- *The main goal of this project is to build a C++ program where donors, patients and the admin can perform their roles. We will use the C++ concepts that we have studied so far, such as functions, arrays, structures, classes, inheritance, and polymorphism.*

- *The expected benefit of this project is that it will help reduce errors, save time, and make the blood-donation process more organized. It is a good learning project for applying all our C++ programming concepts in a practical form.*

2. Background and Justification

- *Blood donation is an important service, but many small clinics and centers still use registers and handwritten notes to manage donors and blood stock. This makes it difficult to find the right blood group on time. Records can be misplaced, and staff must check everything manually.*

- *Some large organizations use computer systems, but most small setups do not have a simple digital tool. Our project focuses on building a basic beginner-friendly system that works on a computer and stores information in an organized way.*

- *This project is justified because it replaces the slow manual process with a basic C++ program. It helps show how programming can solve real-life problems. It also allows us to apply the topics we have studied in 1st and 2nd semester, such as classes, inheritance structures etc.*

3. Project Methodology

We will follow a simple step-by-step plan to build the system:

1. Problem Understanding

In many clinics and blood banks, all records are maintained manually on papers. This causes many problems:

- *Important information about donors or blood requests can be lost.*
- *It takes a long time to find available blood during emergencies.*
- *Keeping track of appointments, donation history or stock is difficult.*
- *Manual records can cause confusion, delays and errors.*

Because of these issues, there is need for a simple computer program that can

- *Store all blood donations and request information in one place.*
- *Make it easy to check blood availability quickly.*
- *Keep track of appointments and donations in an organized way.*
- *Help admins manage requests and stock efficiently.*

This helps solve the problem of missing data, delays and confusion by providing a structured and easy to use system.

2. System Design

The system will be built using C++ basics. It will be modular so each part will have a clear responsibility.

1. Classes and structure

- *User stores common details i.e. name, age, blood group and contact.*
- *Donor handles donor actions register request donation check appointment status*
- *Patient handles patient actions i.e., request blood and check request status.*
- *Admin manages system i.e. approve or reject requests track blood availability view reports*
- *Blood bank keeps track of blood stocks i.e. update stock after donation or request display available blood*

2. Program Flow

1. *Start --> Login or Register*
2. *Choose user type --> donor or patient or admin*
3. *Show menu specific to the user*
- *Donor: Register, request appointment, View Status*
- *Patient: Request blood, check Status*
- *Admin: Approve request, manage stock, view reports*

4. *Perform actions --> Return to menu --> admin*

3. Validation and efficiency

- *Check empty inputs.*
- *Prevent duplicate registrations.*
- *Ensure blood availability is not exceeded when request is made.*
- *Keep menu simple and clear for easy navigation.*

4.Coding in C++

Use any of the following C++ topics in implementation:

- *Functions (user-defined)*
- *Arrays and structures*
- *Classes and Objects*
- *Inheritance for roles*
- *Polymorphism for different actions*
- *Operator overloading where suitable*

5.Testing

Test each feature like donor registration, blood request, and stock update to ensure its working.

6.Final Review

Check output formatting, menu system, input validation, and overall flow.

4. Project Scope

In Scope

The system will include the following features:

For Donor

- *Register personal details*
- *Request an appointment*
- *View appointment status*

For Patient

- *Request blood*
- *Check request status*

For Admin

- *Verify users*
- *Manage donors and patients*
- *Update blood stock*
- *View and manage requests*
- *Generate simple text-based reports*

For Blood Bank

- *Update available blood groups*
- *Check donation records*

All features will be implemented through C++.

Out of Scope

- *No GUI application*
- *No database (only text file storage)*
- *No online system or networking*
- *No mobile application*
- *No advanced algorithms for blood matching*

5. High level Project Plan

Activity	*Duration*	*Team Members*
Requirement Analysis	*2 Weeks*	*Full team*
System & Class Design	*1 Week*	*Team Lead + Members*
Coding (C++ Classes + Functions)	*2 Weeks*	*All members*
File Handling Integration	*1 Week*	*Assigned members*
Testing & Debugging	*1 Week*	*Full team*
Documentation & Finalization	*1 Week*	*Project Manager*

Total Duration: 8 Weeks

This plan includes time for designing classes, implementing OOP concepts, coding all modules, and writing the final documentation.

6. References

1. Google
2. Object-Oriented Programming in C++
3. Discussions with local clinic staff about how they manage blood donation records.