BLOOD BANK MANAGEMENT SYSTEM

A PROJECT REPORT

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CERTIFICATE

Certified that this project report “Blood Bank Management System” is the Bonafide work of “Ranjeet Singh, V.Swaroopa, Ayush Beniwal, Kunal” who carried out the project work under my/our supervision.

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CONTENTS

1. **Introduction**
2. **System Analysis**
   - **Preliminary Investigation**
     - **Feasibility Study**
       - Technical Feasibility
       - Operational Feasibility
       - Economical Feasibility
   - **Gathering Information**
   - **System Study**
       - Existing System
       - Proposed System
3. **System Requirements**
   - Software Environment
   - Working Environment
       - Hardware Configuration
       - Software Configuration
4. **System Design**
   - System Flow Diagram
   - Data Flow Diagrams
   - Database Design
   - Data Dictionary
   - Detailed Description
   - Screens
5. **System Testing**
6. **Implementation and Evaluation**
7. **Conclusion with Future Enhancement**
8. **Bibliography**

INTRODUCTION

A blood donation is a process whereby a person voluntarily has blood drawn to be used for future transfusions when in need at hospitals for treatment procedures that require them. Donation may be of whole blood (blood drawn directly from the body) or of specific components of the blood; such as red blood cells, white blood cells, plasma, and platelets. Blood banks often participate in the process of collecting blood and other procedures such as managing stocks, approving blood requests and updating donation information. The inspiration of this project is to improve blood banks in Pakistan and to develop a blood bank information system which focuses on making an online system that is accessible for both donors and administrators. Donors can directly receive information regarding their previous blood donations, including their blood results and donation history, in order to easily schedule their next donations. They can also update the personal information through the system, without having to contact the blood bank registry . information if necessary. The administrator is also responsible for responding to the hospital's blood requests and checking the stocks in the blood bank's inventory.

Requirement of blood for the National Blood Transfusion Service of Sri Lanka has increased in last three years. Hence it is essential to increase the number of blood donors and maintain efficiency and updated service. In the last 10 years, the number of voluntary donors has been increased compared to non-remunerated donors. Though, there is an increased voluntary blood donor, because of the lack of information relating to bold donation, many people become disentitle to donating blood. Because of this reason, National Blood Transfusion Service of Sri Lanka continuously loses a bulk of acquirable blood for a year from people who are willing to donate blood. To organize blood donation campaigns, organizers need to go to the nearest blood bank to inform and get necessary things to organize blood donation campaigns. It is more time consuming and difficult task. Emergency patients, who need blood immediately, request blood through advertising on televisions or social media. To make the matter worse, National Blood Transfusion Service of Sri Lanka gets island wide blood stock update once a month. It causes further difficulty in terms of making decisions. "The Blood Bank Management

system" is a web based system that directly addresses above problems by integrating relevant functions. Blood donors can register on the system and continuously they will be notified about the campaigns via SMS (Short Message Service). Campaign organizers can organize campaigns online and get responses from blood donors. Patients can request blood via online or sending a SMS. Daily blood stock can also be handled through the system

Methodology

Blood Bank Management System is a web based system with integrating SMS alert function that implemented using HTML, PHP, CSS, JavaScript and JQuery for web development and MySQL for database design. Blood donor can register on the system and it will provide with a donor an ID. Blood campaign organizers can organize a campaign through online. The request is sent to the particular blood bank officer and officer can approve or reject the request. Once he/she approves the campaign, donors may get SMS notification to their mobile by informing the campaign. Not only that, organizer informs with the approved status via SMS to the organizer's phone. Patients can request blood via online or just by sending a SMS to the system. Then system will inform to all the relevant donors with the request. Blood stock will be handled day by day through the system. Blood bank officer can add or remove a donor to the system and from the system. Also he can add blood stock to the relevant blood bank. Blood Bank Management system has separate Admin panel. Administrator can view island wide blood stock either as blood group or branch. Furthermore, administrator can add a new bank to the system as well as a user to the system

The project was carried out at Uva Wellassa University using its computer facilities. Relevant consumer protection process, regulation and the technologies were collected. Android version 4.0.4, PHP, HTML, Java script, Json, SQLITE and MySQL were used as development languages. Android developer tools eclipse (Juno), Notepad++, and XAMPP Control Panel 3.1.0 were used as development tools (Android Training API Guides; JSON Tutorial & AJAX Tutorial; Stack Overflow). The Use case diagram, Data Flow Diagram and the Entity Relationship Diagram were done under the logical design

of the system. Android and the web development interface and the databases were developed under the physical design. Supportive admin panel web system was developed in the first stage of the project. The web system front end was developed using HTML and CSS. Ajax and the JavaScript function were used for the validation and PHP function call. Android web services and the web back end function were developed using PHP language. Android mobile application was developed in the second stage of the project. APP interfaces were designed based on responsive Xml design. Therefore the mobile application is compatible with the different screen sizes of the mobile devices. Mobile application used HTTP request and response to communicates with the web system. Json array Format was used to send and received the information between mobile application and the web site. All back end functions in the website were developed using the PHP scripts. Both PHP and the android language were provided by Json encode and the decode function. Therefore it was great technical advantage to share large amount of information between server and the mobile application. The main functions flow of the system is explained by Figure: 01 Data Flow Diagram .The consumer and the web admin are the main two users who interacted with the system. A consumer's mobile phone is registered automatically when the application icon is clicked, after which the consumer's profile information will be updated with the system. The login could be done after the profile is updated. After login process, consumer is able to perform functions such as make a call, search a profile and price list, share or read market frauds, make comments on share market frauds, browse web, and search GPS location etc

The web administrator can directly login to the system via web admin panel. He has permission to manage the consumer registering profile and the consumer shared market frauds. Also he can enter, update and delete data used by the consumer via mobile application .Also market fraud's analytical reports can also be generated via web system.

System Development:

The process of building systems has always been complex with system becoming larger, the costs and complexities get multiplied. So the need for better methods for developing systems is widely recognized to be effective and the applied model should meet a few basic requirements.

- The model should be structured and cover the entire system development process from feasibility study to programming, testing and implementation.
- The model should utilize established methods and techniques like database designs, normalizations and structured programming techniques.
- The model should consist of building blocks, which define tasks, results and interfaces.
- The model should separate the logical system from the physical system.
- Documentation should be a direct result of the development work and should be concise, precise and as non-redundant as possible. Based on the above requirements of the system model, system study has been made. Various methodologies have been applied for system study, evolving design documents, data modeling, input screen design and report design.

Project:

The persons who like to donate blood registers in my site as well as he can modify the details if necessary, giving the Login Id and Password. The persons in need of blood searches for the persons having the same blood group and with in the city. If he found a donor in his city then he gets the total details of the donor, if he doesn't find any donor then he is given the contact numbers and addresses of the Life Saving Contact Persons for major cities. If he doesn't have any chance to contact them then he will be provided with Mobilink Paging Services in order to get the blood

Result and Discussion

The Android mobile application with the Admin web system was the final outcome of the project. The mobile device is automatically registered with the web system when the user logged into the mobile application. Then all relevant basic information is downloaded and the stored inside the SQLite database in Android application. Mobile application uses the stored information, when user performs function using mobile application. Application provides facilities to upload and update the web system at real time. Search, complain, news, price list, ask help, consumer affair authority and your location are the main features of mobile application. Internet connection is essential requirement for the use of this app. Web system provides facilities to perform delete, update, insert, observe, view and to get the analytical report. Web admin can access the web site after login the website. District price levels, Regulate products, Register business, Island price level page icon contain the update section on the main page. Sri Lanka Postal code, web links Update, Change Admin User and Add Contact Number List are on the preference section. Consumer Share news, Comment Analyst Reports, consumer profile search and Frequently News Share Shops icons contain the consumer section on the page. These entire icons are linked with web pages.

The key finding of the literature survey is, that the main reason for the complexities engaged in AJAX based RIAs engineering is, the lack of availability of architectural formalism for AJAX based RIAs engineering (Dissanayake, Dias, & Jayawardena, 2013). In the analysis of the cross-sectional survey, we derived and highlighted the following results. The understanding of the general AJAX architecture is not difficult, and there is a good usage of Computer Aided Software Engineering (CASE) Proceedings of the Research Symposium of Uva Wellassa University, January 29-30, 2015 26 tools in AJAX RIA development. However, the difficulty level of implementing AJAX features in the same page increases, with the number of AJAX features in the page (Dissanayake & Dias, 2014). One of the complexities we noted throughout the series of experiments is that the difficulties engaged in the file management of the project. Referring to the AJAX general architecture, standard practice when implementing an AJAX feature is, pointing the AJAX request to a dedicated PHP script file in the server. This dedicated script file contains the

code for the logic, to provide the complete respond for the particular request. Usually these script files contain few lines of codes, needed to handle the single request.

To control this situation we propose a conceptual technique, we name it as the RIA-Bus (Dissanayake & Dias, 2014). Instead of maintaining numerous small script files in the server to handle the AJAX requests, we advise to keep a single script file – what we call the RIA-Bus – which contains the code to receive all the AJAX requests; direct the processing of the request to the necessary scripts or functions; and respond back the client, with the results returned from the functions in the other script files. Figure 01 illustrates the architectural structure of the RIA-Bus. A parameter will be sent to the RIA-Bus along with the request by the AJAX engine, to indicate the type of the AJAX feature, which requests the service. Based on the type of the feature, the RIA-Bus can decide, to where the processing should be passed. RIA-Bus is responsible for reading all the data sent by the AJAX engine – using either GET or POST method – and pass the data to the function dedicated for processing the data. Figure 02 shows a sample PHP code of a RIA-Bus.

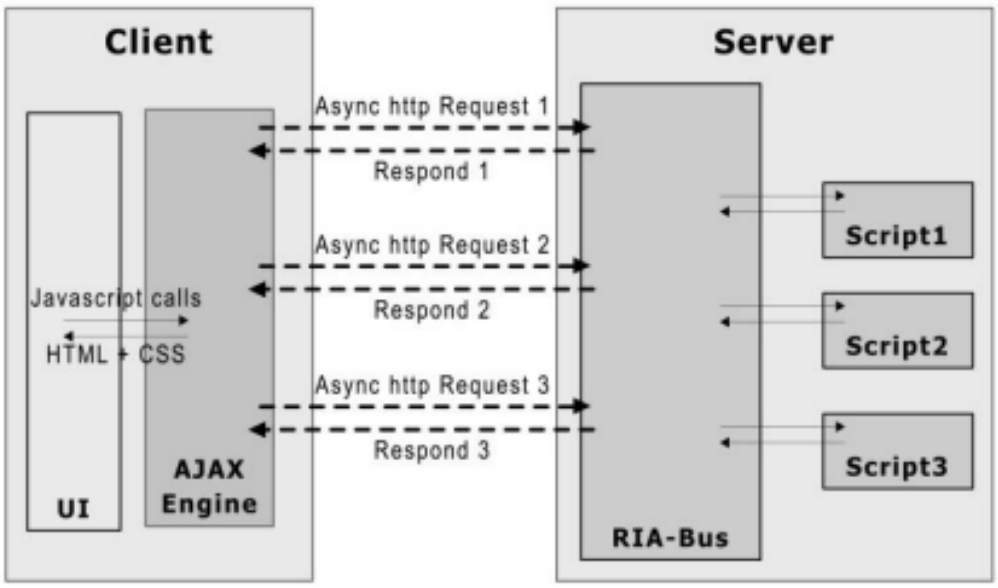


Figure 01: Architecture of AJAX-based RIA, using the RIA-Bus

SYSTEM ANALYSIS

Preliminary Investigation:

First in the system development process is preliminary Investigation. Preliminary Investigation is conducted in the following phases.

- **Project clarification**
- **Feasibility study**
- **Project appraisal**

Project clarification is the process of selecting a project request for further study. When a system development or modification request is made, the first systems activity, the preliminary investigation, begins the activity has three parts: Request clarification, feasibility study and project appraisal. Many request from employees and users in organization are not clearly stated.

Therefore before any systems investigation can be considered, the project request must be examined to determine preciously what the originator wants. This is called Request clarification.

As important outcome of the preliminary investigation is the determination that the system request in feasible.

Feasibility Study:

The feasibility study is performed to determine whether the proposed system is viable considering the Technical, Operational and Economical factors. After going through feasibility study we can have a clear-cut view of the system's benefits and drawbacks.

Technical Feasibility:

The proposed system is developed using Active Server Page, VB Script and HTML as front-end tool and SQL as the back end. The proposed system needs a Personal Web Server to serve the requests submitted by the users. The Web browser is used to view the web page that is available within the Windows operating system itself. The proposed system will run

under Win9x, NT, and win2000 environment. As Windows is very user friendly and GUI OS it is very easy to use. All the required hardware and software are readily available in the market. Hence the system is technically feasible.

Operational Feasibility:

The proposed system is operationally feasible because of the following reasons.

- The customer is benefited more as most of his time is saved. The customer is serviced at his place of work.
- The cost of the proposed system is almost negligible when compared to the benefits gained.

Economical Feasibility:

As the necessary hardware and software are available in the market at a low cost, the initial investment is the only cost incurred and does not need any further enhancements. Hence it is economically feasible.

The system is feasible in all respects and hence it encourages taking up the system design.

Gathering Information:

The analysis through collection of data plays the wider role in the analysis of the system. So the data is collected at different levels of management to keep track of full information of the system.

The collection of data is done from

- Top Level Management
- Middle Level Management
- Low Level Management

Different methods used to collect the data:

Questioners:

The data is collected through questioners by filling a set of questions from the different levels of management. The questions made by questioners are three different types.

They are,

Structured questioners:

Unstructured questioners:

Semi-structured questioners:

Interviews:

Interviews were conducted to collect the information. The interviews were conducted at two levels.

1. ***Formal Group Interviews:*** the interviews conducted for formal groups i.e., the hierarchical (official) groups in the firm.
2. ***Informal Group Interviews:*** the interviews were conducted for informal groups i.e., the groups formed out side the company.

Observation:

The data is also collected by observation of the firm. The data is collected by observing on the site at different timings and at different situations like when the firm is busy and when the firm hasn't much work to do.

Record Review:

To collect the data and to get a clear idea of the firm some of the data is also collected from the past records of the firm. This information helps very much to get a clear idea of the firm i.e., the different problems occurred in different seasons and some exception conditions. This very much gives a clear idea of exceptional conditions.

Objectives

The goal of the project is to develop a web application for blood banks to manage information about their donors and blood stock. The main objectives of this website development can be defined as follows: 1. To develop a system that provides functions to support donors to view and manage their information conveniently. 2. To maintain records of blood donors, blood donation information and blood stocks in a centralized database system. 3. To inform donors of their blood result after their donation. 4. To

support searching, matching and requesting for blood convenient for administrators. 5. To provide a function to send an e-mail directly to the donor for their user account and the hospital, the availability of the blood ba

System Study:

Present system:

There are certain features limiting the process of the present system.

The drawbacks of the present system are listed below.

- The increase in number of vehicles now a days.
- The increase in number of accidents now a days.
- The patients cannot get the information of donors easily.

Proposed system:

The proposed system, Online Blood Bank site overcomes the drawbacks of the present system. The Blood Bank helps the people who are in need of a blood by giving them overall details regarding the donors with the same blood group and with in their city.

The advantages of the proposed system are listed below.

- The people in need of blood can search for the donors by giving their blood group and city name.
- It is very flexible and user friendly.
- The person's time and work is reduced very much which prevails in the present system.
- Easy and Helpful.
- The people are not limited to receive or provide services in working hours of the branch only; he is serviced 24 hours a day, 7 days of week and 365 days of the year.

Limitation:

- In this project the searching can be done for donors for majority of cities but not for every city.
- In this project the contact person's details are given for the limited cities only.

SYSTEM REQUIREMENTS

Software Environment:

Software Environment is a technical specification of requirement of software product. This specifies the environment for development, operation and maintenance of the product.

Technology used:

- Http
- Http Basics
- PHP
- SQL
- JavaScript
- CSS
- HTML
- VBScript

HTTP:

The Hypertext Transfer Protocol is stateless, TCP/IP based protocol used for communicating on the World Wide Web. HTTP defines the precise manner in which Web clients communicate with Web servers. HTTP/1.0 is the most common version in use today. Oddly enough, this protocol is not officially recognized as an Internet standard. It is documented in the informational RFC 1945. Its successor, HTTP/1.1, is currently a proposed Internet standard and many browsers and servers now support this new version.

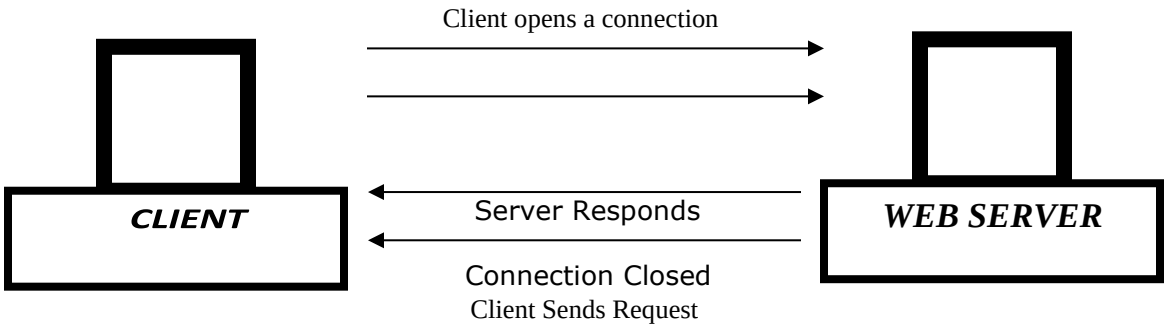
HTTP Basics:

The HTTP protocol follows a very simple request/response paradigm. In short, a conversation between a Web browser and Web server goes something like this: the client

opens a connection to the server, the client makes a request to the server, the server responds to the request, and the connection is closed.

The four stages of a simple Web transaction:

- The client opens a connection to the server.
- The client makes a request to the server.
- The server responds to the request.
- The connection is closed.



Connectionless Protocol:

HTTP is a connectionless protocol. As you may have guessed, the difference between a connectionless and a connection-oriented protocol is in the way they handle connections. Using a connectionless protocol, the client opens a connection with the server, sends a request, receives a response, and closes the connection. Each request requires its own connection. With a connection-oriented protocol, the client connects to the server, sends a request, receives response, and then holds the connection open in order to service future requests.

The connectionless nature of HTTP is both strength and a weakness. Because it holds a connection open only long enough to service the request, very few server resources are required to service large numbers of users. In fact many popular Web sites service millions of users in a single day. The drawback to a connectionless protocol is that a

connection must be established with every request. Opening a new connection with each request incurs a performance penalty that translates into additional delays for the user.

Alternatively, a connectionless protocol such as FTP has a strong performance advantage over a connectionless protocol. This is due to the fact that the overhead required to open a new connection is incurred only once rather than with every request. Unfortunately, each open connection consumes some amount of server resources. These finite resources, such as memory and disk space, limit the number of concurrent users the server can handle. In contrast to a Web site, an FTP site can rarely support more than a few hundred users at a time.

Stateless Protocol:

As stated in the definition, HTTP is a stateless protocol. A protocol is said to be stateless if it has no memory of prior connections and cannot distinguish one client's request from that of another. In contrast, FTP is a ***stateful*** protocol, because the connection is not opened and closed with every request. After the initial login, the FTP server maintains the user's credentials throughout the session. On the other hand, due to its stateless nature, there is no inherent method in HTTP for tracking a client's traversal of a Web site. Every connection is a new request from an anonymous client.

The stateless nature of HTTP is both strength and a weakness. It is strength in that its stateless nature keeps the protocol simple and straightforward. It also consumes fewer resources on the server and can support more simultaneous users since there are no client credentials and connections to maintain. The disadvantage is in the overhead required to create a new connection with each request and the inability to track a single user as he traverses a Web site.

PHP

PHP is a general-purpose scripting language geared toward web development.[5] It was originally created by Danish-Canadian programmer Rasmus Lerdorf in 1993 and released in 1995.[6][7] The PHP reference implementation is now produced by The PHP Group.[8] PHP originally stood for Personal Home Page,[9] but it now stands for the recursive initialism PHP: Hypertext Preprocessor.

FEATURES OF PHP

- Simple, Familiar and ease of use: Its popularly known for its simplicity, familiarity and easy to learn the language as the syntax is similar to that of 'C' or Pascal language.

- So the language is very logical and well organized general-purpose programming language. Even people with a normal programming background can easily understand and capture the use of language. PHP is very advantageous for new users as its a very reliable, fluent, organized, clean, demandable and efficient.

- The main strength of PHP is the availability of rich pre-defined functions. The core distribution helps the developers implement dynamic websites very easily with secured data. PHP applications are very easy to optimize.

- Loosely typed language: PHP encourages the use of variables without declaring its data types. So this is taken care at the execution time depending on the value assigned to the variable. Even the variable name can be changed dynamically.

- Flexibility: PHP is known for its flexibility and embedded nature as it can be well integrated with HTML, XML, Javascript and many more. PHP can run on multiple operating systems like Windows, Unix, Mac OS, Linux, etc. The PHP scripts can easily run on any device like laptops, mobiles, tablets, and computer. It is very comfortably integrated with various Databases. Desktop applications are created using advanced PHP features. The executable PHP can also be run on command-line as well as directly on the machine. Heavyweight applications can be created without a server or browser.

- It also acts as an excellent interface with relational databases.

- Open Source: All PHP frameworks are open sources, No payment is required for the users and its completely free. User can just download PHP and start using for their applications or projects. Even in companies, the total cost is reduced for software development providing more
  reliability and flexibility.

SQL:

The name SQL stands for Structural Query Language. SQL is a data access language, like any other language, it is used for communication. SQL communicates with database manager. The database manager could be Oracle, Informix, DB2 and SQL database. SQL is easy to learn. Despite the fact that SQL is a computer programming language, it is much simpler than traditional programming language like COBOL, BASIC, FORTRAN or API. This is due to the fact that SQL is a nonprocedural language.

SQL is one of the Oracle facilities. It is important to understand in each case its differences, purpose and place in the Oracle family.

- SQL is the language used to access a relational database, including Oracle.
- SQL May be used with each of the Oracle tools, where access to the database is required.

Overview of SQL:

A database management system requires a query language to enable users to access data. Structured Query Language (SQL – pronounced 'sequel') is the language used by most relational database systems.

IBM developed the SQL language in a prototype relational database management system –System R – in the mid-1970s. In 1979, Oracle Corporation introduced the first commercially available implementation of SQL.

Features of SQL:

- SQL is an English-like language. It uses words such as select, insert, delete as part of its command set.
- SQL is a non-procedural language: you specify *what* information you require, not how to get it. In other words, SQL does not require you to specify the access method to the data. All SQL statements use the query optimizer – a part of the RDBMS – to

determine the fastest means of retrieving the specified data. This feature makes it easier for you to concentrate on obtaining the desired result.

- SQL processes sets of records rather than a single record at a time.
  - The most common form of a set of records is a table.
  - A range of user including DBAs, application programmers, management personnel, and many other types of end users can use SQL.
  - SQL provides commands for a variety of tasks including:
    - Querying data
    - Inserting, updating and deleting rows in a table
    - Creating, modifying and deleting database objects Controlling access to the database and database objects Guaranteeing database consistency.

SQL Processing Capabilities:

SQL is composed of a definition language a Data Manipulation Language and a Data Control Language. These three languages support the complete spectrum of Relational Data processing activity. In fact most SQL based product all access to the data through SQL.

1. Data Definition Language:

DDL allows creation, Deletion and Modification of data structure for bar system. These structures include tables, databases and indexes.

Ex: Create, Drop and Alter.

2. Data Manipulation Language:

These commands are used to manipulate the data in tables directly or through views. There are four standard DML statements. They are select, delete, insert and update.

3. Data control language:

These commands are used to control usage and access of data. The most commonly found one's will include grant, revoke.

Why to Use?

Oracle greatly supports RDBMS features. Also it supports high security to the data and faster accessing capability. It can be run on a variety of platforms and operating systems. One can develop an application easily by providing user-friendly environment.

The features of oracle are portability and compatibility.

HTML:

The extended reach of information and services to customers that the Internet has enabled, has created a new challenge for the developer. The developer should develop a user interface that is distributable, available on multiple platforms and supports a wide range of client environments from handheld wireless devices to high-end workstations. So to maintain a broad reach to client environments and to achieve greatest compatibility with all browsers, this system uses standard HTML.

Hyper Text Markup Language is the standard language for creating documents for the World Wide Web. An HTML document is a text file, which contains the elements, in the form of tags that a web browser uses to display text, multimedia objects, and hyperlinks using HTML; we can format a document for display and add hyperlinks to other documents.

The user interface has been designed in HTML hence can be browsed in any web browser.

Cascading Style Sheets:

These have been used to separate data form presentation. By using these style sheets throughout the project, a uniform look and feel can be maintained for all the HTML elements and tags that have been used in the project. If there is any revamp the way the content has been presented in the website, the changes can be made to the appropriate style sheet, which will be reflected across all the style sheets.

VB Script:

VBScript is the default script for ASP. Most of the code written in ASP is in VBScript. VBScript made ASP powerful by providing all features of other languages. VBScript supports all data types, loops, conditional statements which is very useful in making ASP page as dynamic.

VBScript is a script-based programming language that supports the development of both client and server components of web based applications. On the client side, it can be used to write programs that are executed by a web browser within the context of the web page. On the server side it can be used to write web server programs that can process information submitted by a web browser and then update the browsers display accordingly.

The script can perform actions, such as generating HTML codes that affects the display of the browser window. It can be perform actions that affect the operation of plug-ins and ActiveX components. The script can also define VB Script language elements that are used by other scripts.

Some script may define functions for handling events that are generated by user actions. For example, we might write a script to define a function for handling by event "submitting a form" or "clicking a link". The event handlers can then perform actions such as validating the forms data or loading a new page. VBScript's event-handling capabilities provide greater control over the user interface than HTML alone.

Background of the Study

For hospitals, a blood bank known as blood collection center, also is an area in which collected blood bags are stored and preserved for future use in blood transfusion services. Blood transfusion is a medical operation where a patient requires blood or blood products as a life saving measure. . In an article[1] published in Times of Oman in 2014, it was reported by Ministry of Health (MoH) that the total amount of blood donated annually in Muscat is approximately 25,084 units. MoH further reported that its Department of Blood Services is functioning at full capacity to meet the demands in the Sultanate.

Most blood banks are still running manual system in its processes. As such, there is a lack of efficiency because it is still paper-based in collecting information about donors, inventories of blood bags, and blood transfusion services. The lack of proper documentation may endanger patients' health due to the possibility of having contaminate blood bags. Contamination happened when there is an incomplete donors' medical history record and the blood bags' shelf life is not monitored properly. Hence, a web-based blood bank management system might be needed to address these issues and problems encountered to ensure blood transfusion safety.

WORKING ENVIRONMENT

Hardware Configuration:

Processor	:	Intel I3 .
RAM	:	64 MB RAM
Hard Disk Drive	:	20 GB HDD
Keyboard	:	104 keys
Mouse	:	Logitech Mouse
Monitor	:	15” digital color monitor
Display Type	:	VGA

Software Configuration:

Operating System	:	Windows 7
Web server	:	Personal Web Server
Web Browser	:	Google Chrome
Designing Tool	:	HTML , CSS , Javascript
Server Side Scripting	:	PHP
Client Side Scripting	:	PHP
Backend	:	SQL

SYSTEM DESIGN

Introduction to System Design:

System design is the process of planning a new system or to replace the existing system. Simply, system design is like the blueprint for building, it specifies all the features that are to be in the finished product.

System design phase follows system analysis phase. Design is concerned with identifying functions, data streams among those functions, maintaining a record of the design decisions and providing a blueprint the implementation phase.

Design is the bridge between system analysis and system implementation. Some of the essential fundamental concepts involved in the design of application software are:

- Abstraction
- Modularity
- Verification

Abstraction is used to construct solutions to problem without having to take account of the intricate details of the various component sub problems. Abstraction allows system designer to make step-wise refinement, which at each stage of the design may hide, unnecessary details associated with representation or implementation from the surrounding environment.

Modularity is concerned with decomposing of main module into welldefined manageable units with well-defined interfaces among the units. This enhances design clarity, which in turn eases implementation, Debugging, Testing, Documenting and Maintenance of the software product. Modularity viewed in this sense is a vital tool in the construction of large software projects.

Verification is fundamental concept in software design. A design is verifiable if it can be demonstrated that the design will result in implementation that satisfies the customer's requirements. Verification is of two types namely.

- Verification that the software requirements analysis satisfies the customer's needs.
- Verification that the design satisfies the requirement analysis.

Some of the important factors of quality that are to be considered in the design of application software are:

Reliability:

The software should behave strictly according to the original specification and should function smoothly under normal conditions.

Extensibility:

The software should be capable of adapting easily to changes in the specification.

Reusability:

The software should be developed using a modular approach, which permits modules to be reused by other application, if possible.

The System Design briefly describes the concept of system design and it contains four sections. The first section briefly describes the features that the system is going to provide to the user and the outputs that the proposed system is going to offer.

The second section namely Logical Design describes the Data Flow Diagrams, which show clearly the data movements, the processes and the data sources, and sinks, E-R diagrams which represent the overall logical design of the database, and high-level process structure of the system.

The process of design involves “conceiving and planning out in the mind” and making a drawing pattern, or sketch of the system. In software design there are two types of major activities, Conceptual Design and Detailed Design.

Conceptual or logical or external design of software involves conceiving, planning out, and specifying the externally observable characteristics of a software product. These characteristics include user displays, external data sources, functional characteristics and high-level process structure for the product.

Details or internal design involves conceiving, planning out, and specifying the internal structure and processing details of the software product. The goal of internal design is to specify internal structure, processing details, blueprint of implementation, testing, and maintenance activities.

One of the important fundamental concepts of software design is modularity. A modularity system consists interfaces among the units. Modularity enhances design clarity, which in turn eases implementation, debugging, testing, documentation, and maintenance of the software product.

The other fundamental concepts of software design include abstraction, structure, information hiding, concurrency and verification. The use of structuring permits decomposition of a large system into smaller, more manageable units with well-defined relationships to the other units. The system design is verifiable if it can be demonstrated that the design will result in an implementation that satisfies the customer's requirements.

Preliminary Design:

Preliminary design is basically concerned with deriving an overall picture of the system. Deriving entire system into modules and sub-modules while keeping Cohesion and Coupling factors in mind. Tools, which assist in preliminary design process, are Data Flow Diagrams.

Code design:

The purpose of code is to facilitate the identification and retrieval for items of information. A code is an ordered collection of symbols designed to provide unique identification of an entity or attribute. To achieve unique identification there must be only one place where the identified entity or the attribute can be entered in the code; conversely there must be a place in the code for every thing that is to be identified.
This mutually exclusive feature must be built into any coding system.

The codes for this system are designed with two features in mind. Optimum human oriented use and machine efficiency. Length of the code range from length of one to length of five characteristics:

- The code structure is unique; ensuring that only one value of the code with a single meaning may be correctly applied to a given entity or attributes.
- The code structure is expansible allowing for growth of its set of entities and attributes.
- The code is concise and brief for recording, communication, transmission and storage efficiencies.
- They have a uniform size and format.
- The codes are simple so that the user can easily understand it.
- The codes are also versatile i.e., it is easy to modify to reflect necessary changers in condition, chart eristic and relationships of the encode entities.
- The codes are also easily storable for producing reports in a predetermined order of format.

- The codes are also stable and do not require being frequently updated thereby promoting user efficiency.
- The codes are also meaningful.
- They are also operable i.e., they are adequate for present and anticipate data processing both for machine and human use.

Input Design:

Input design is a part of overall system design, which requires very careful attention. The main objectives of input design are:

- To produce a cost-effective method of input.
- To achieve the highest possible level of accuracy.
- To ensure that the input is acceptable to and understood by the user staff.

In this system input screens are designed very carefully so that no inaccurate data will enter the database. The data is made as easy as possible. For simplifying the data entry many facilities are given.

Each and every screen in this system is facilitated by many pushbuttons so that the user can easily work with this system.

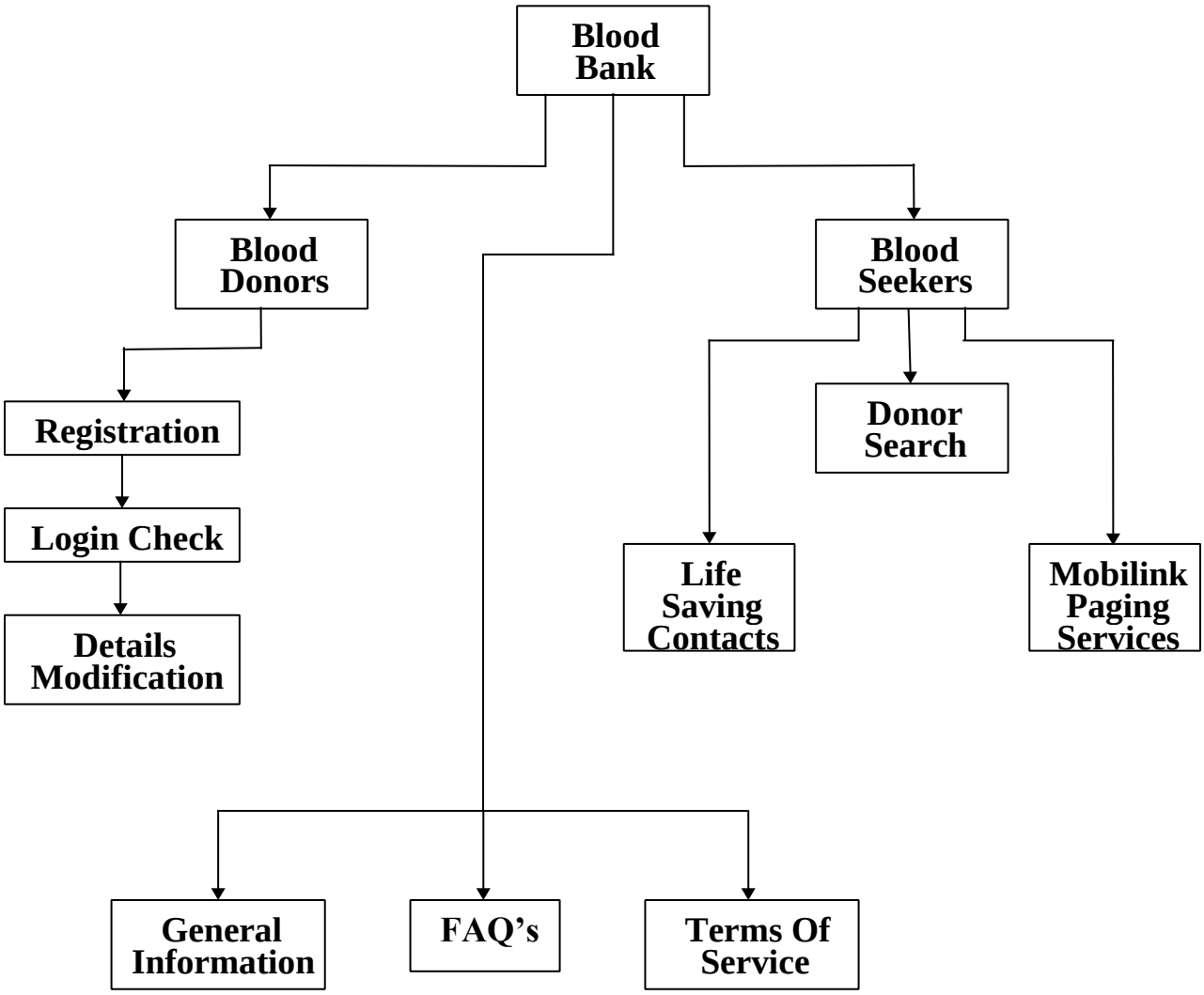
Output Design:

Outputs from computer systems are required primarily to communicate the results of processing to users. They are also to provide a permanent hard copy of these results for later consultation.

The various types of outputs are required by this system are given below:

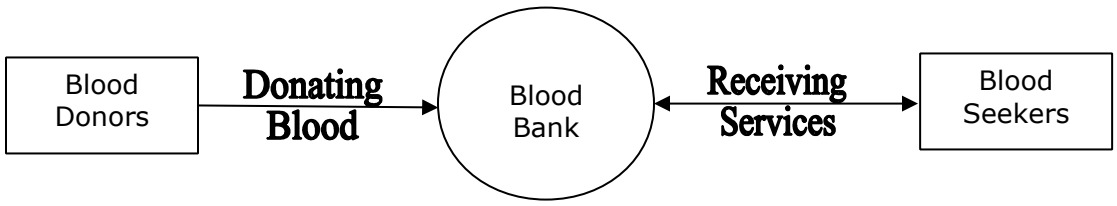
- External outputs, whose destination is outside the concern and which require special attention because they, project the image of the concern.
- Internal outputs, whose destination is within the concern and which require careful design because they are the user's main interface within the computer.
- Operation outputs, whose use is purely within the computer department, E.g., program listings, usage statistics etc,
- Interactive outputs, which involves the user in communicating directly with the computers.

System - Flow Diagram:



Data - Flow Diagrams:

Context Level - DFD:



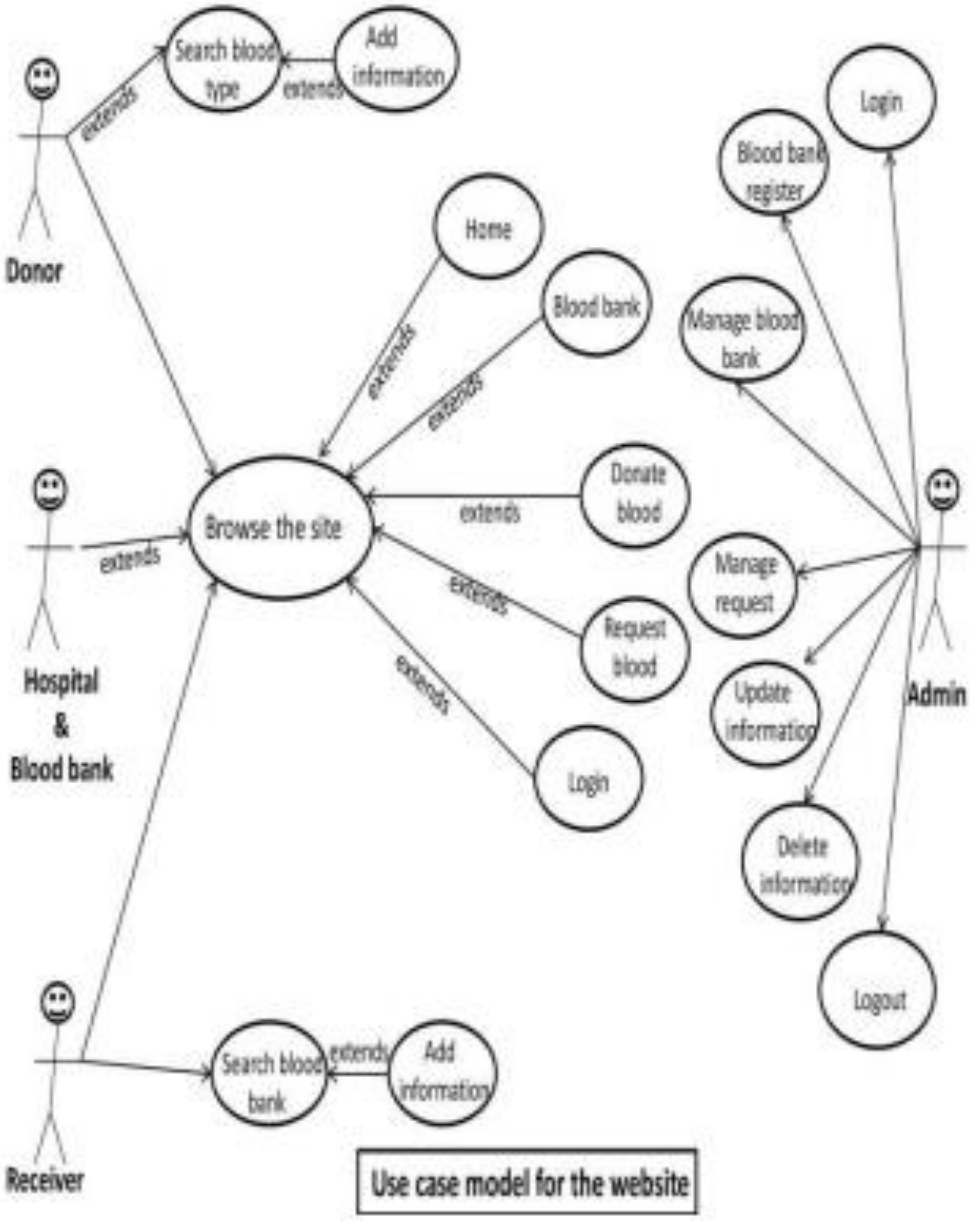
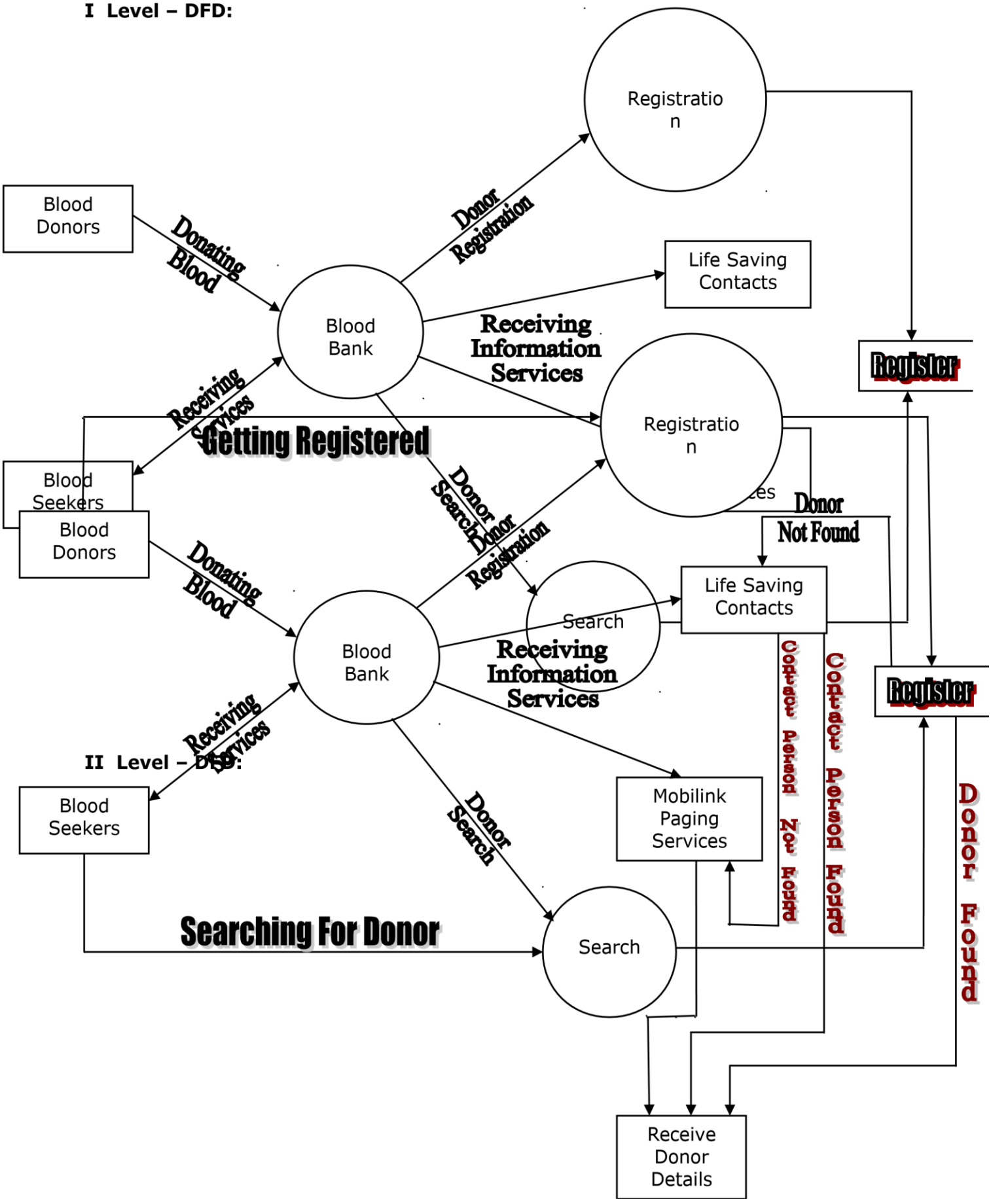
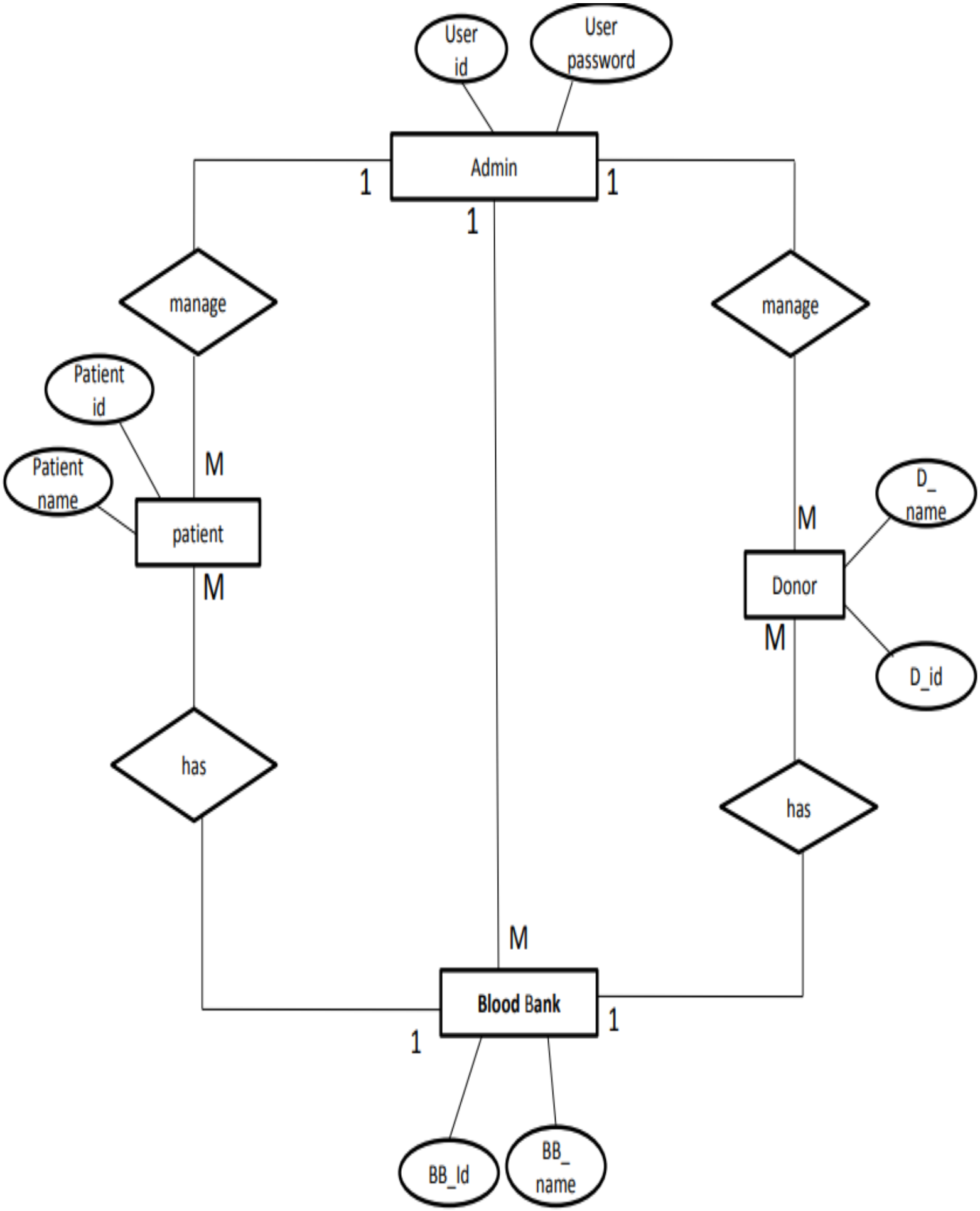


Figure 4- Use case model of website

I Level – DFD:

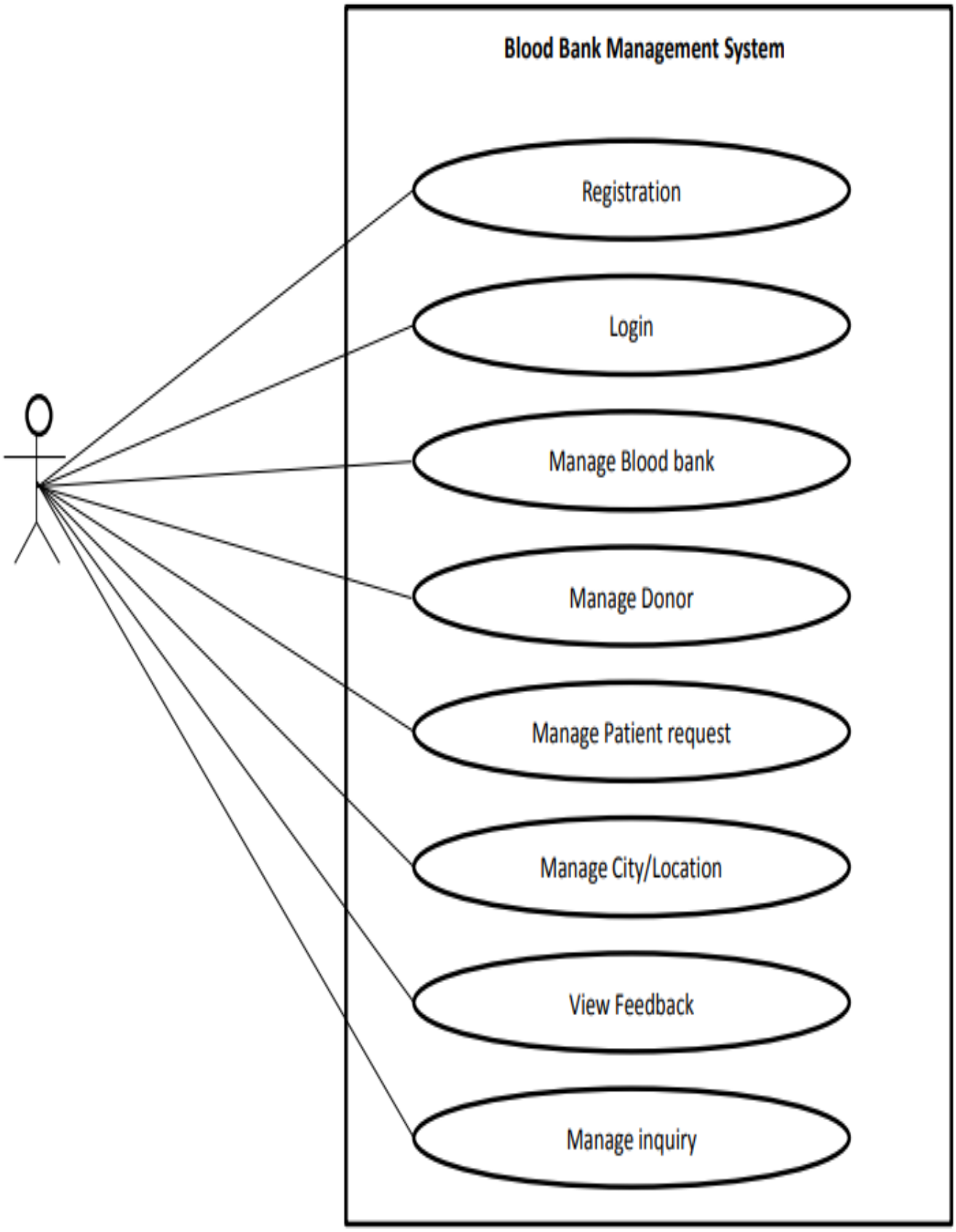


II Level – DFD:

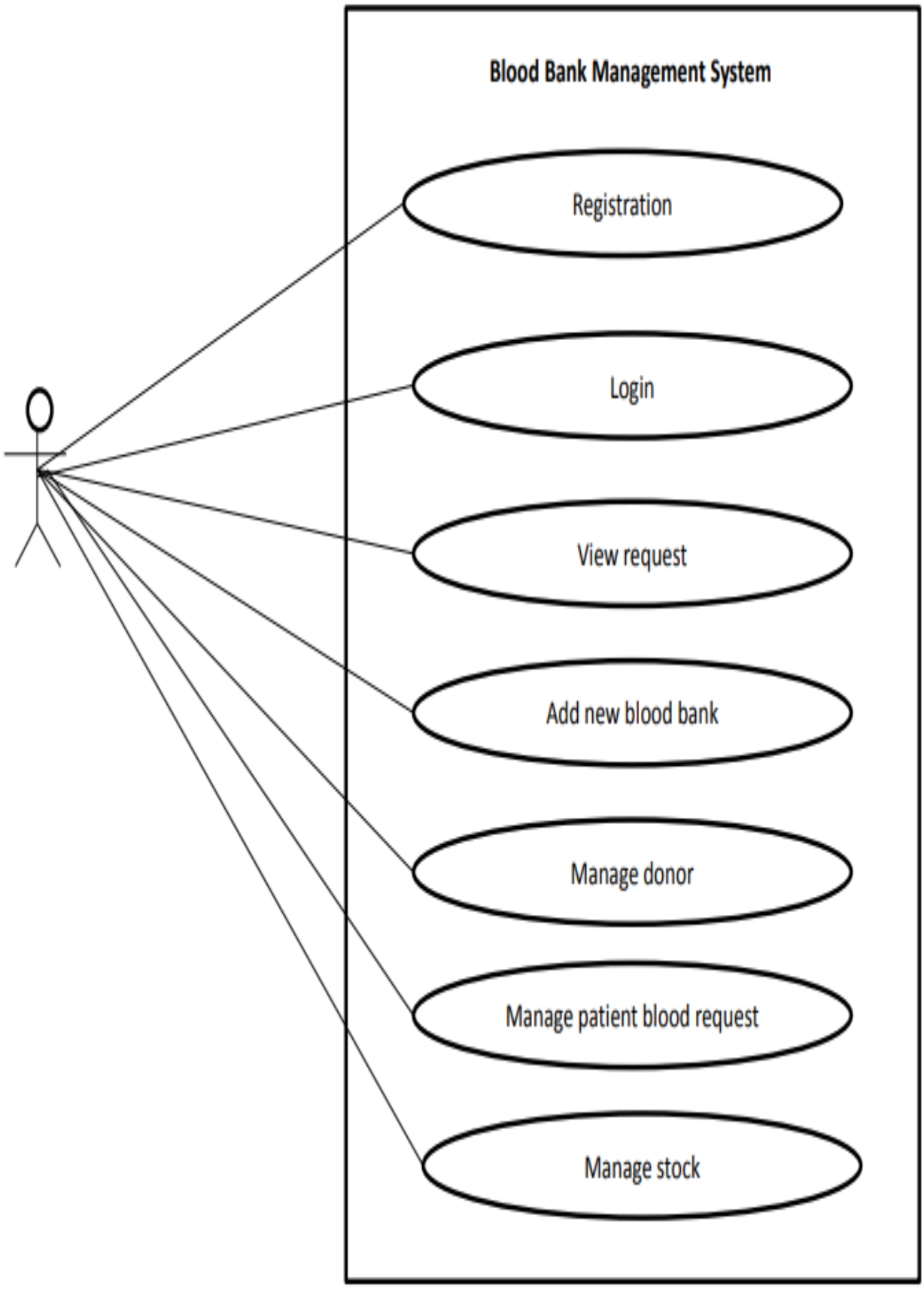

User id
User password
Admin
1
1
1
manage
manage
Patient id
Patient name
patient
M
M
M
D_ name
Donor
M
D_id
has
has
M
Blood Bank
1
1
BB_Id
BB_ name

Use case Diagram

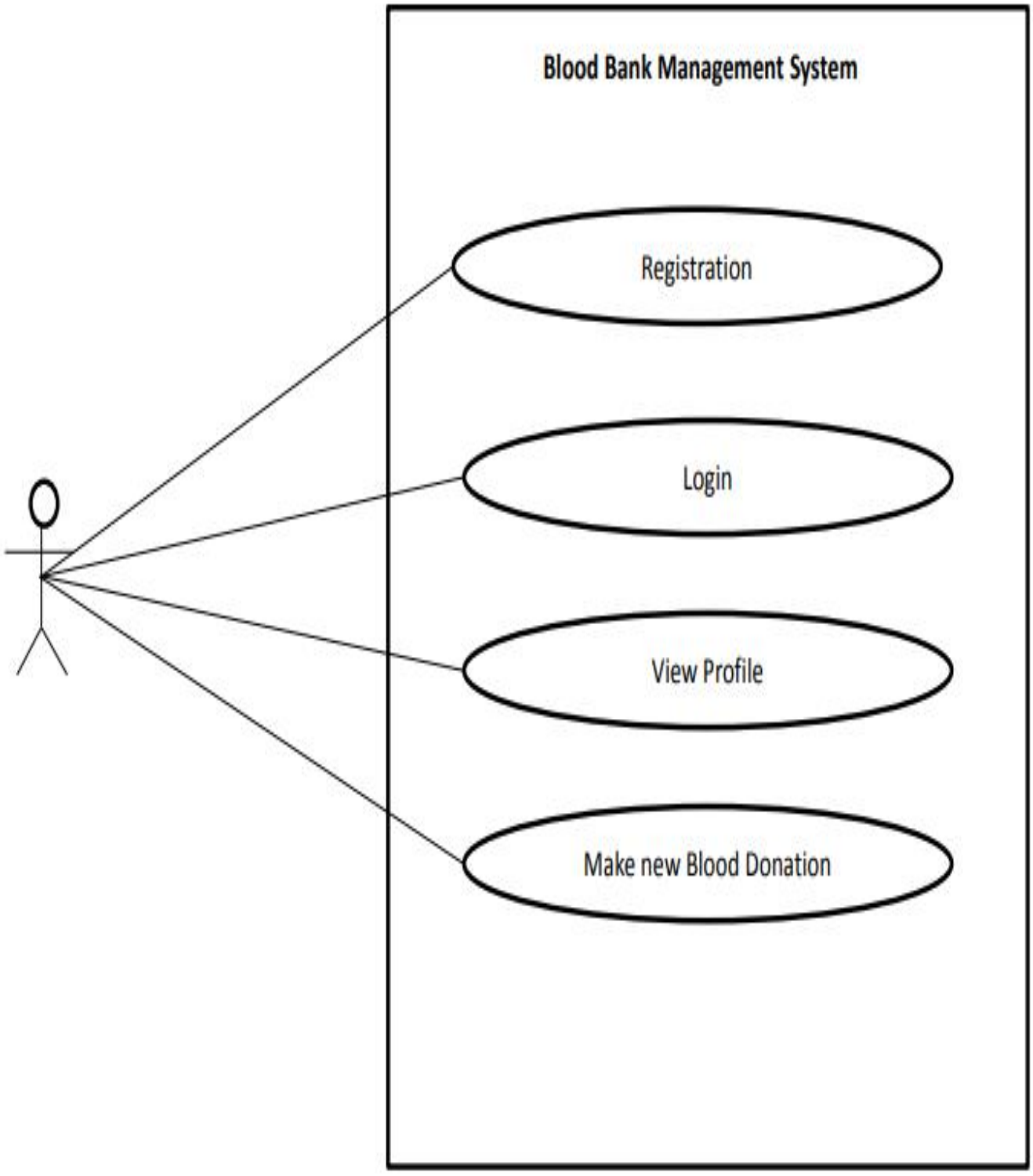
Admin:



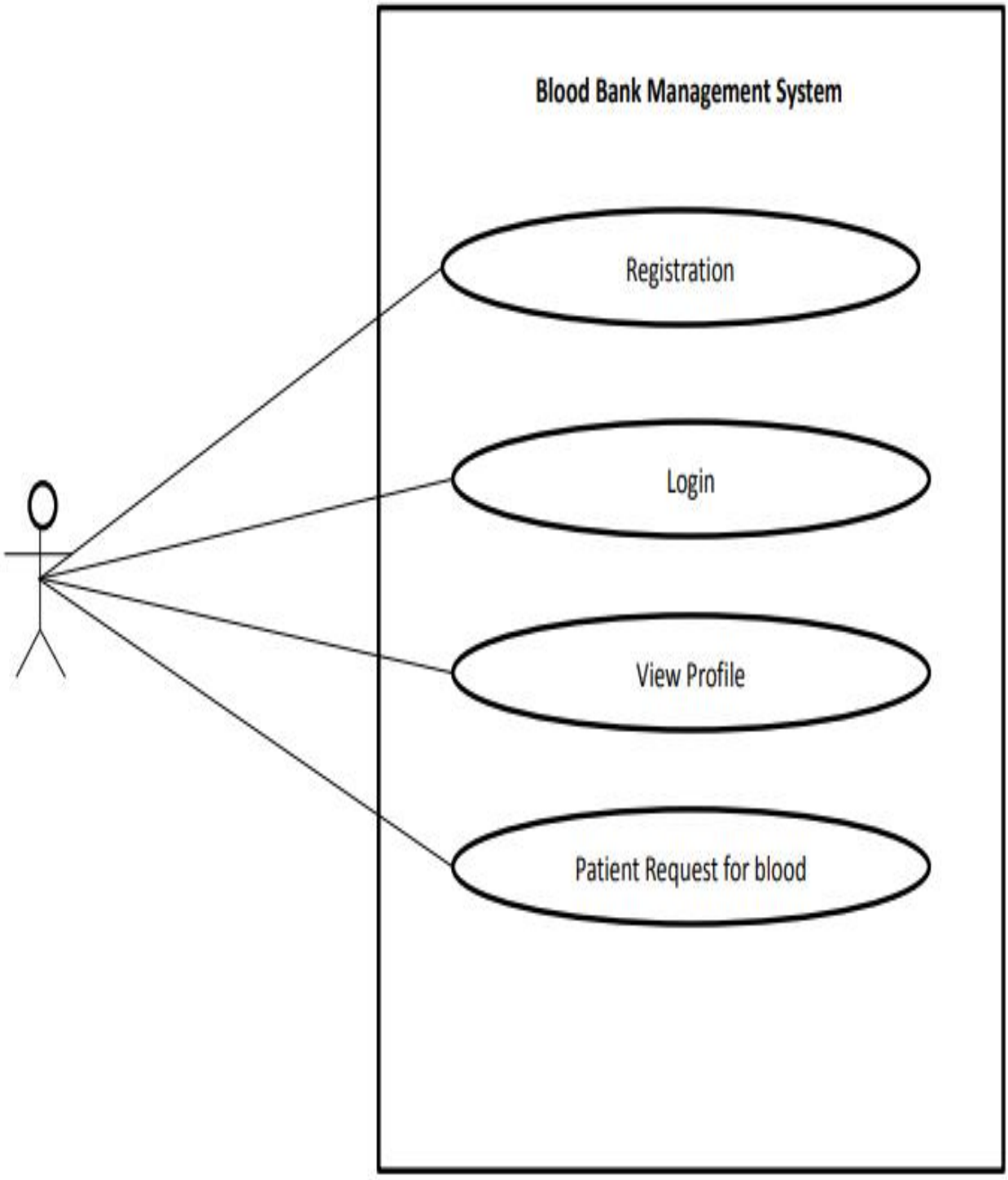
Blood bank:


Blood Bank Management System
Registration
Login
View request
Add new blood bank
Manage donor
Manage patient blood request
Manage stock

Donor:

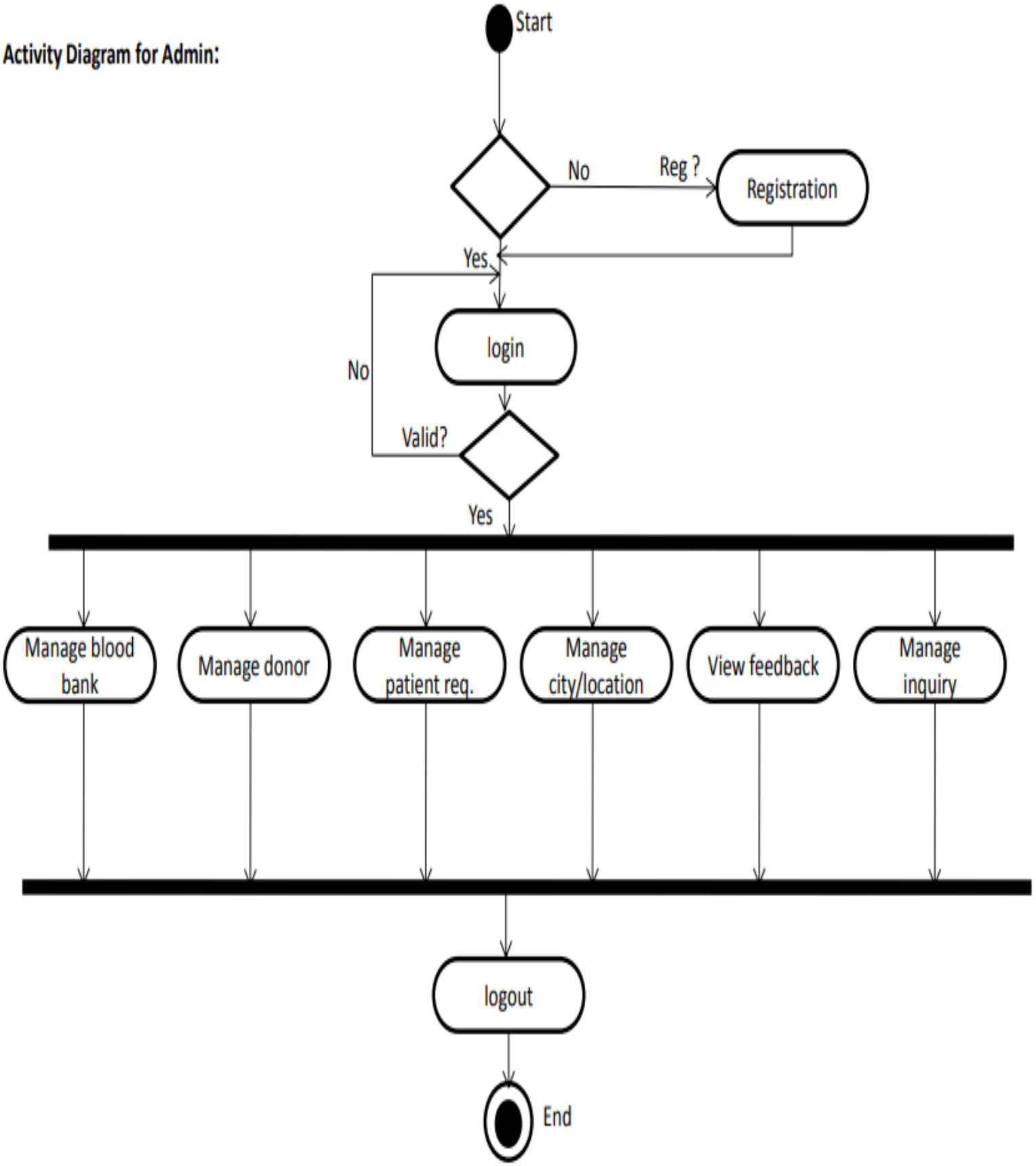

Blood Bank Management System
Registration
Login
View Profile
Make new Blood Donation

Patient :

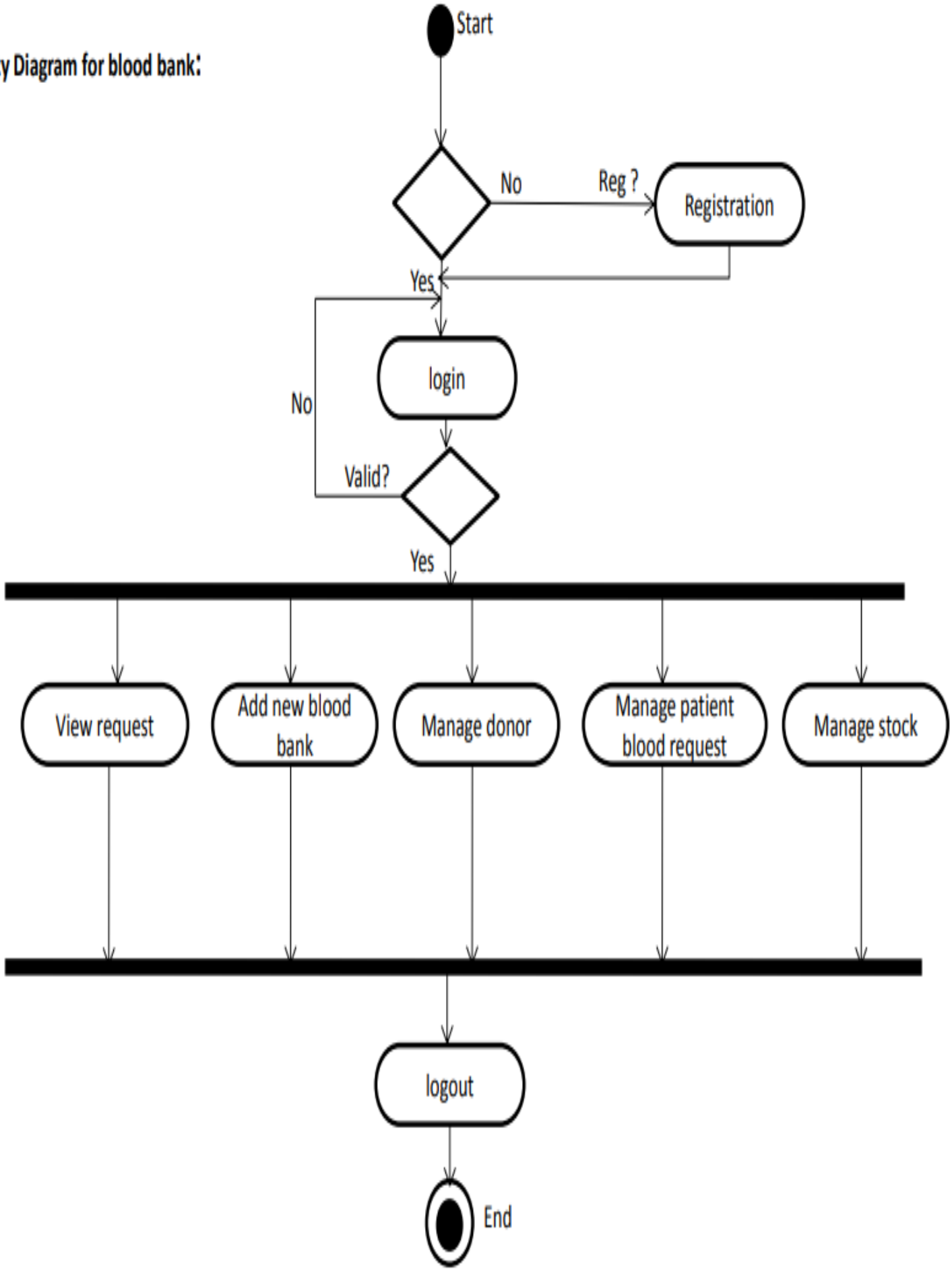

Blood Bank Management System
Registration
Login
View Profile
Patient Request for blood

Activity Diagram

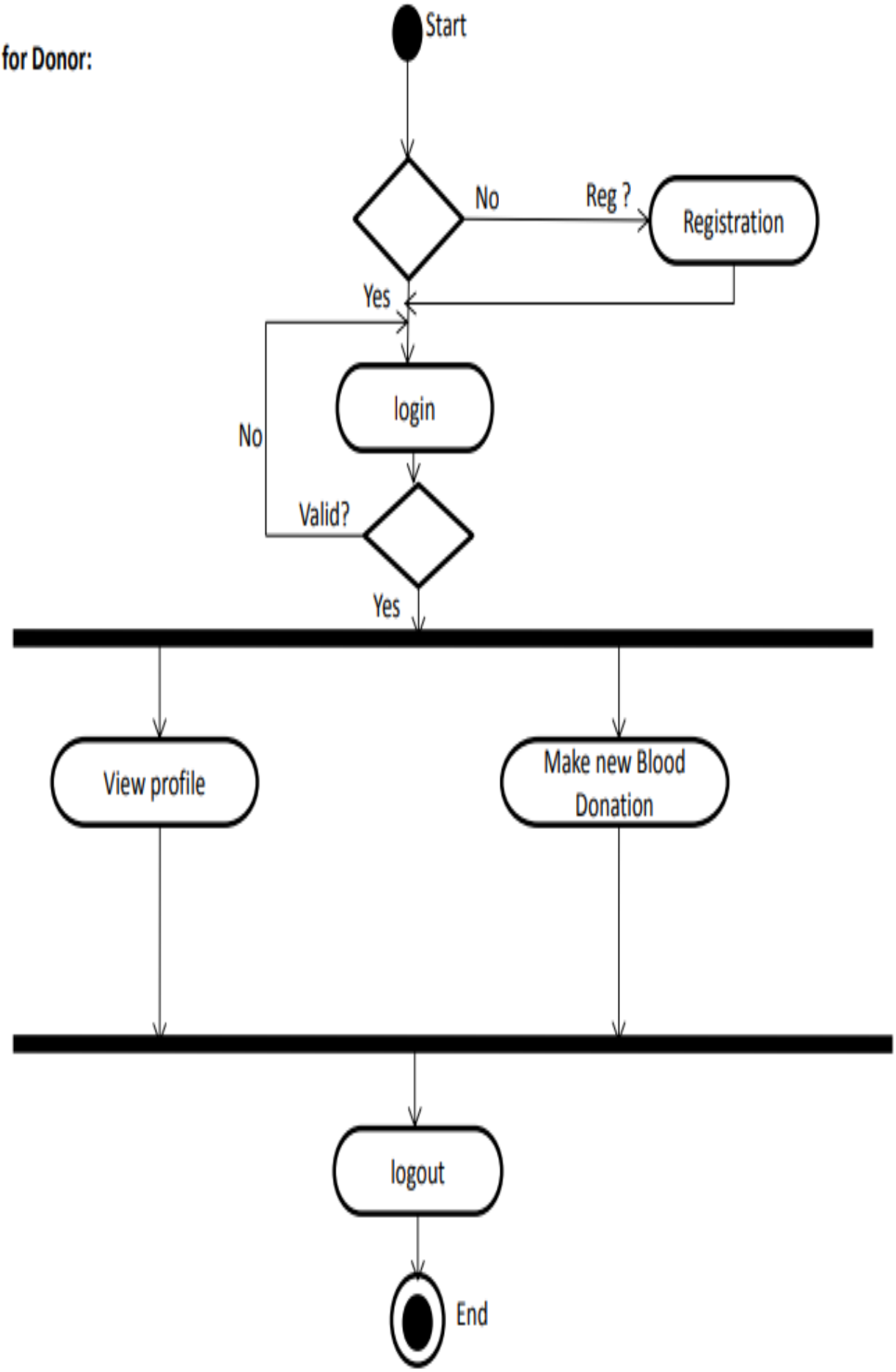
Activity Diagram for Admin:



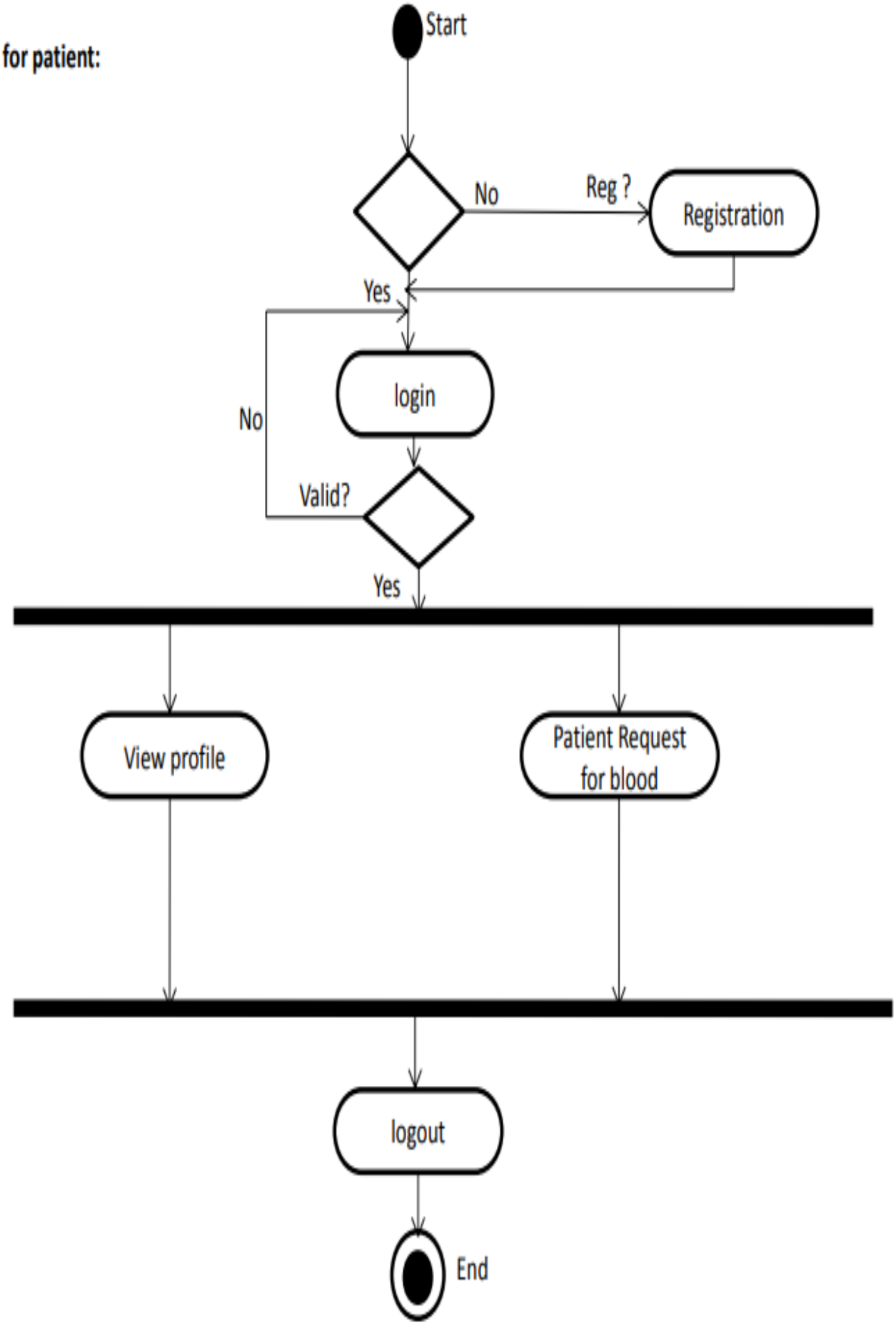
Activity Diagram for blood bank:



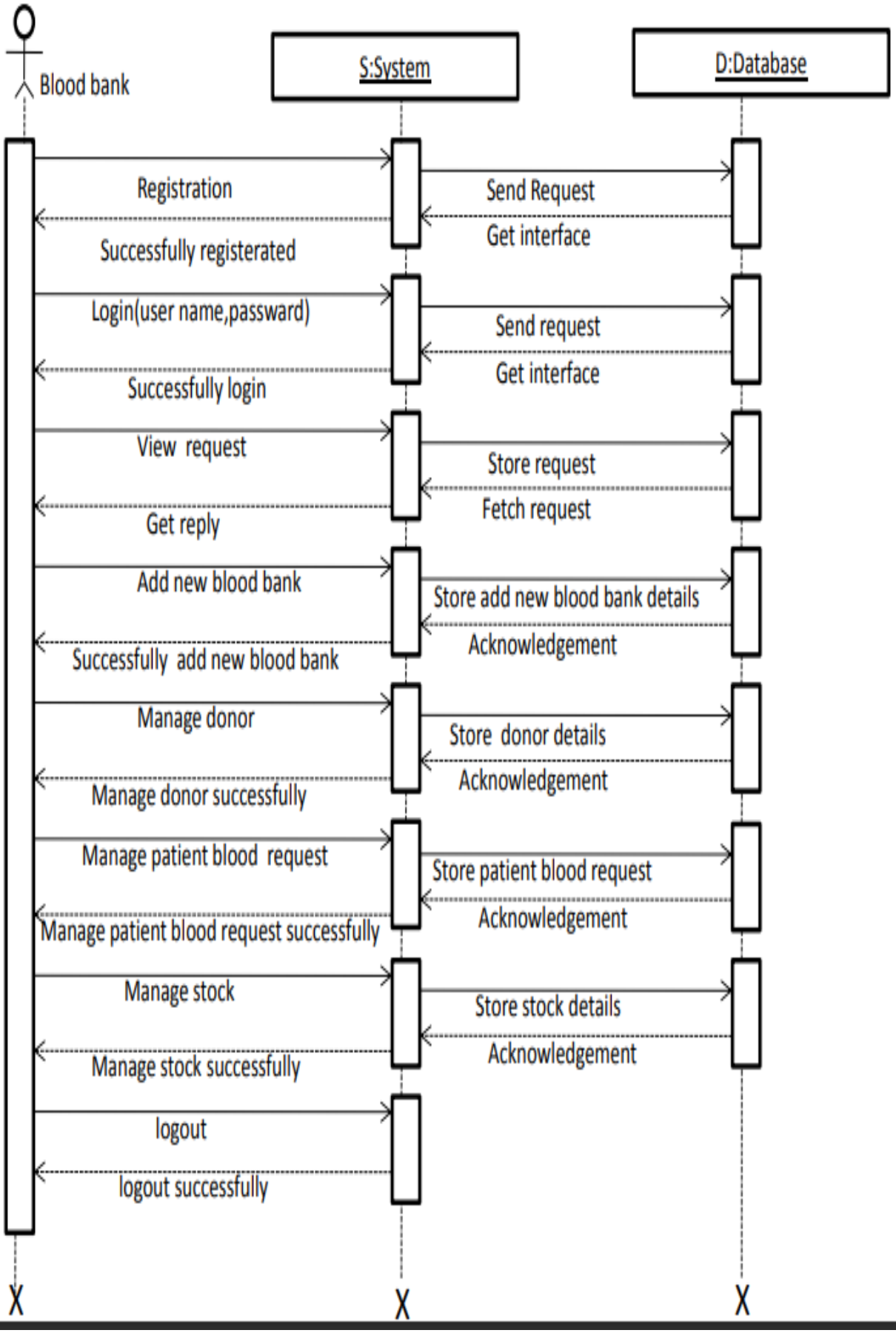
Activity Diagram for Donor:



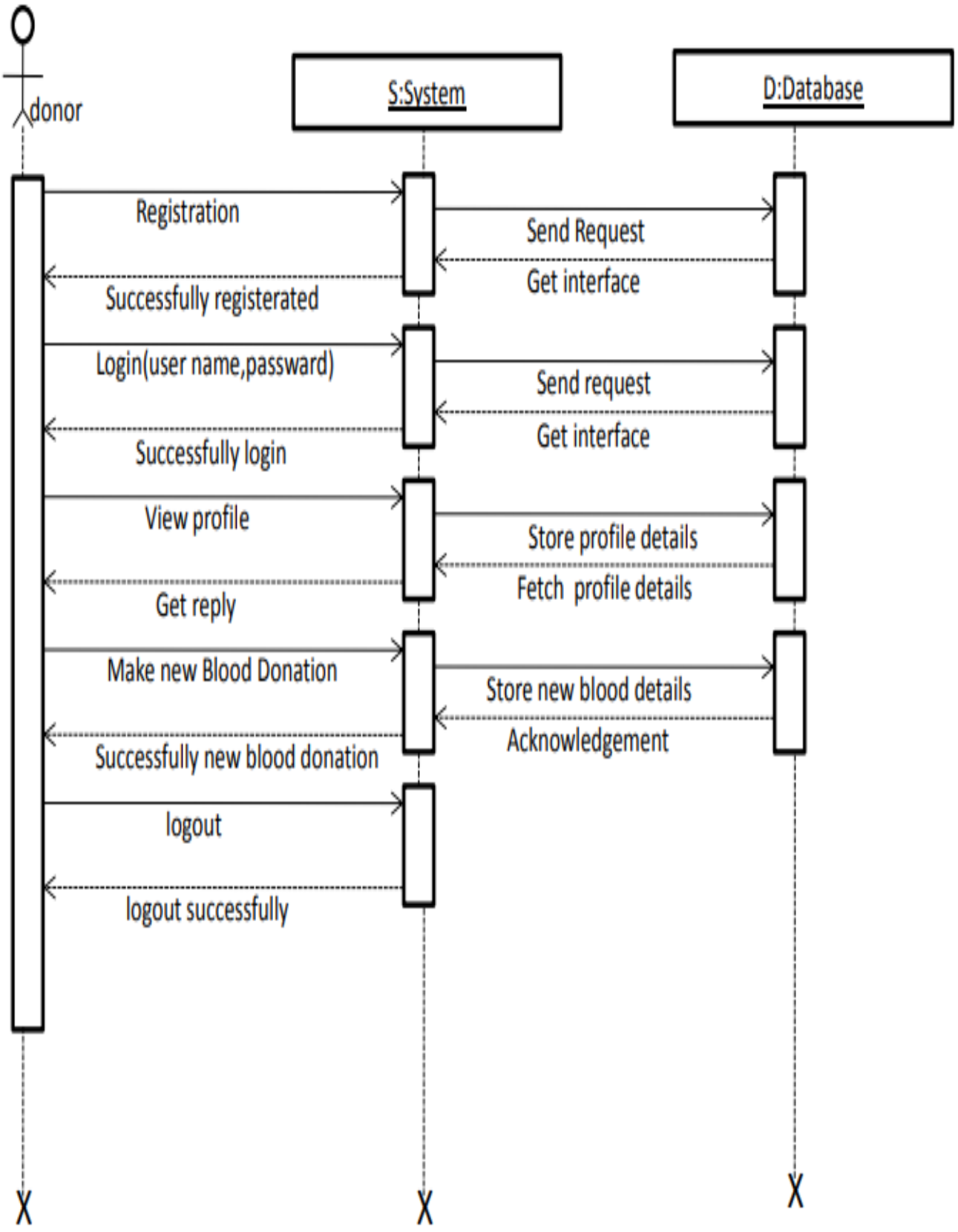
Activity Diagram for patient:



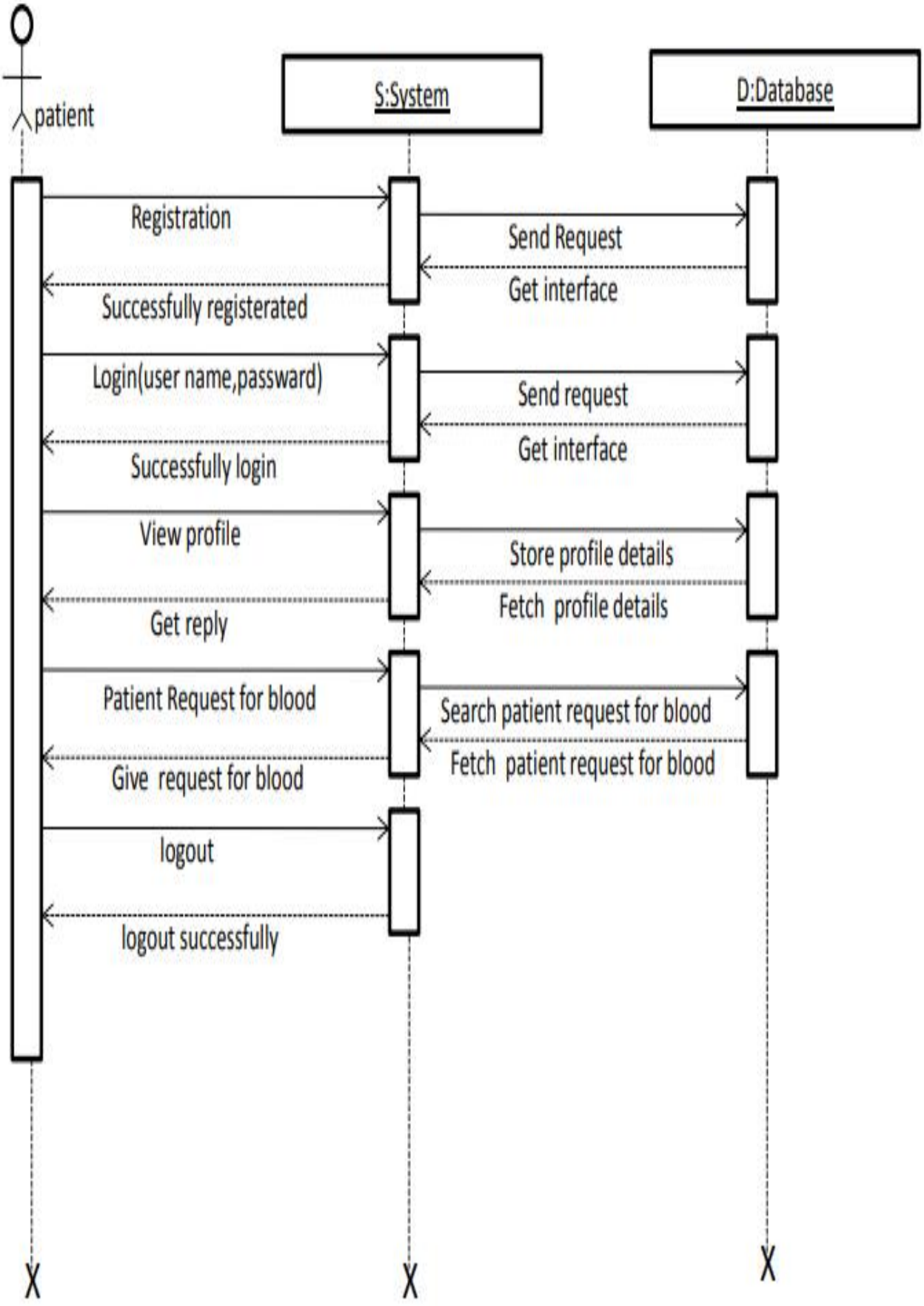
Blood bank :


Blood bank
S:System
D:Database
Registration
Send Request
Get interface
Successfully registerated
Login(user name,passward)
Send request
Get interface
Successfully login
View request
Store request
Fetch request
Get reply
Add new blood bank
Store add new blood bank details
Acknowledgement
Successfully add new blood bank
Manage donor
Store donor details
Acknowledgement
Manage donor successfully
Manage patient blood request
Store patient blood request
Acknowledgement
Manage patient blood request successfully
Manage stock
Store stock details
Acknowledgement
Manage stock successfully
logout
logout successfully

Donor :

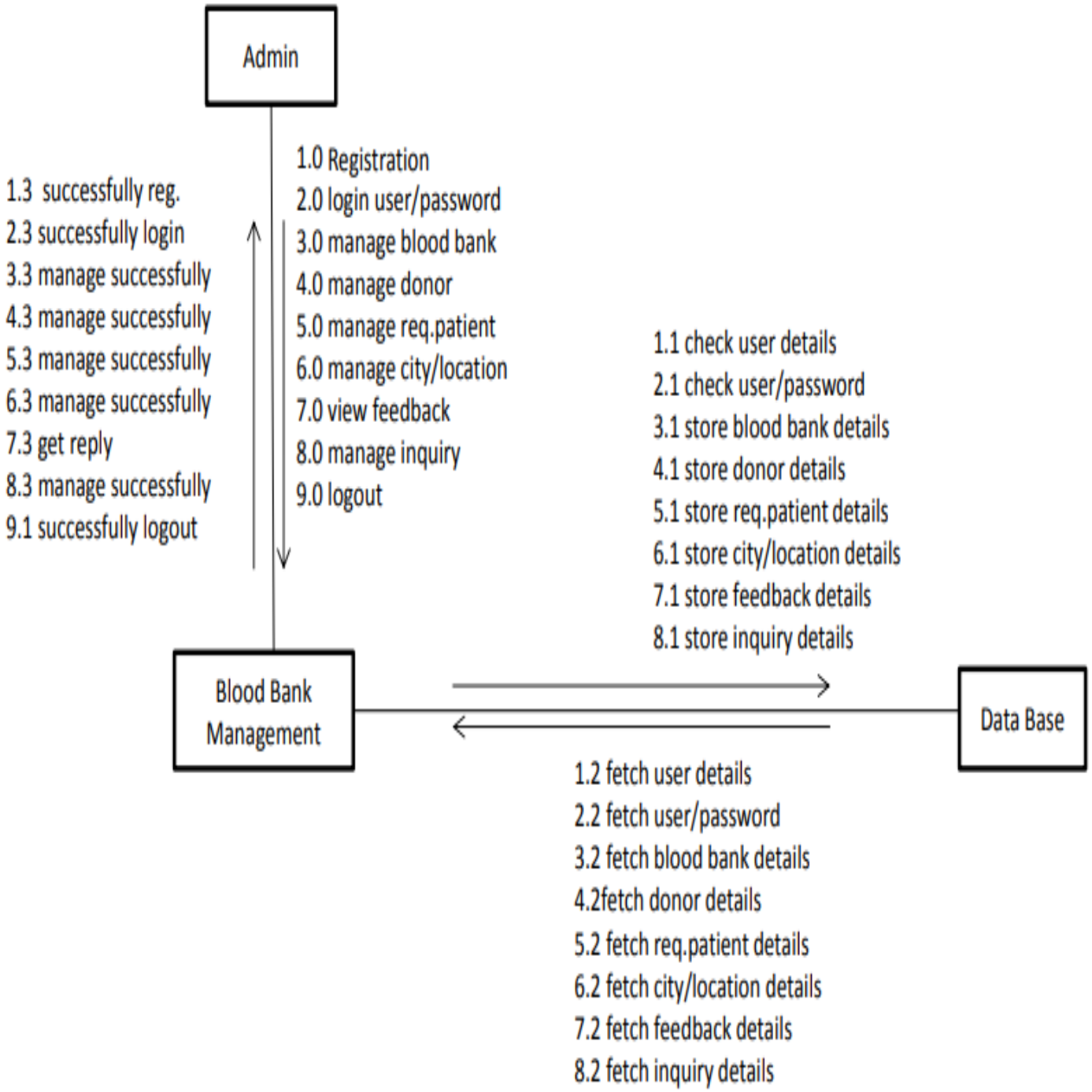

donor
S:System
D:Database
Registration
Send Request
Get interface
Successfully registerated
Login(user name,passward)
Send request
Get interface
Successfully login
View profile
Store profile details
Fetch profile details
Get reply
Make new Blood Donation
Store new blood details
Acknowledgement
Successfully new blood donation
logout
logout successfully

Patient :

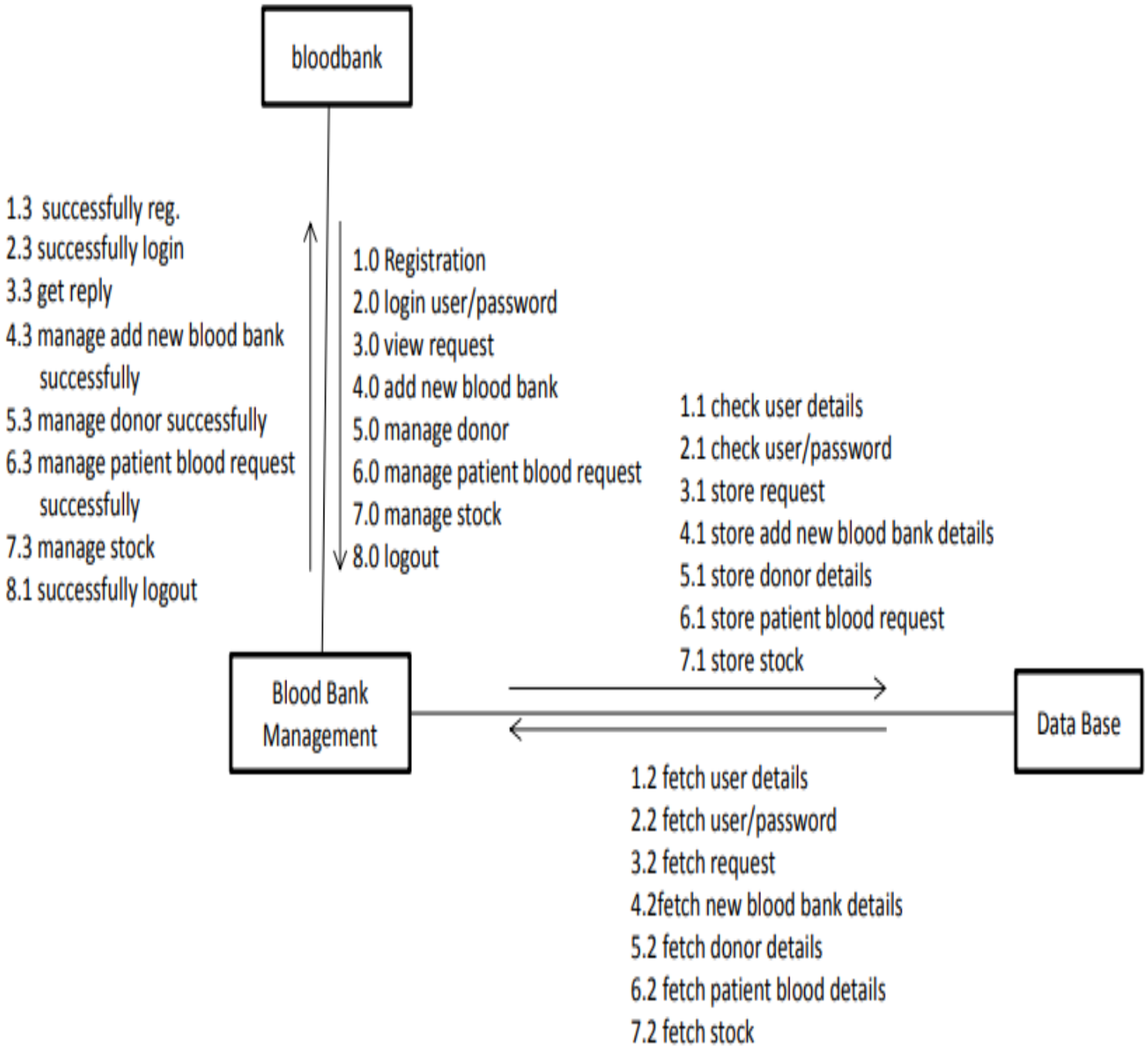

patient
S:System
D:Database
Registration
Send Request
Get interface
Successfully registerated
Login(user name,passward)
Send request
Get interface
Successfully login
View profile
Store profile details
Fetch profile details
Get reply
Patient Request for blood
Search patient request for blood
Fetch patient request for blood
Give request for blood
logout
logout successfully

Collaboration Diagram

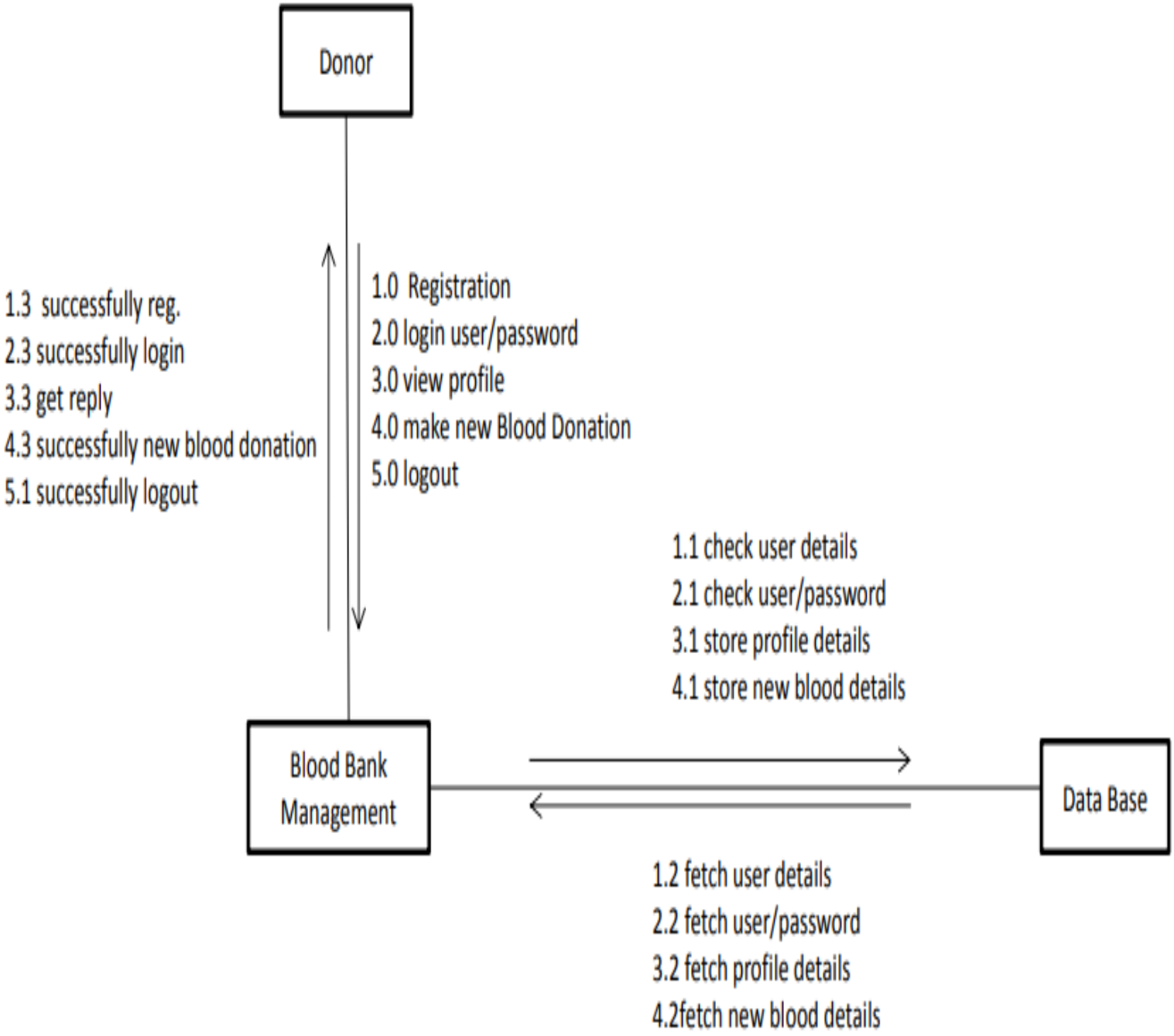
Admin:



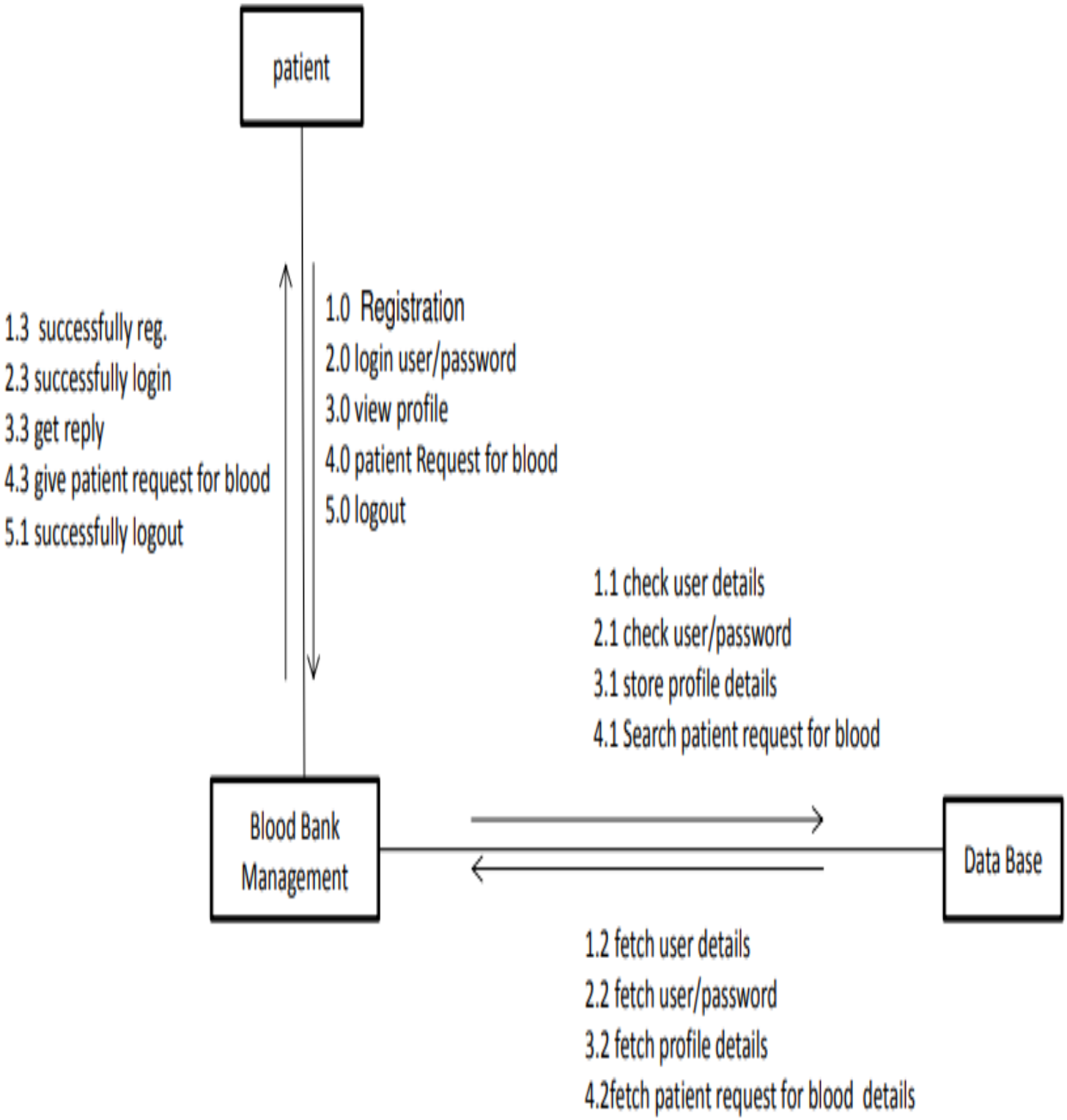
Blood bank:


bloodbank
1.3 successfully reg.
2.3 successfully login
3.3 get reply
4.3 manage add new blood bank successfully
5.3 manage donor successfully
6.3 manage patient blood request successfully
7.3 manage stock
8.1 successfully logout
1.0 Registration
2.0 login user/password
3.0 view request
4.0 add new blood bank
5.0 manage donor
6.0 manage patient blood request
7.0 manage stock
8.0 logout
1.1 check user details
2.1 check user/password
3.1 store request
4.1 store add new blood bank details
5.1 store donor details
6.1 store patient blood request
7.1 store stock
Blood Bank Management
Data Base
1.2 fetch user details
2.2 fetch user/password
3.2 fetch request
4.2fetch new blood bank details
5.2 fetch donor details
6.2 fetch patient blood details
7.2 fetch stock

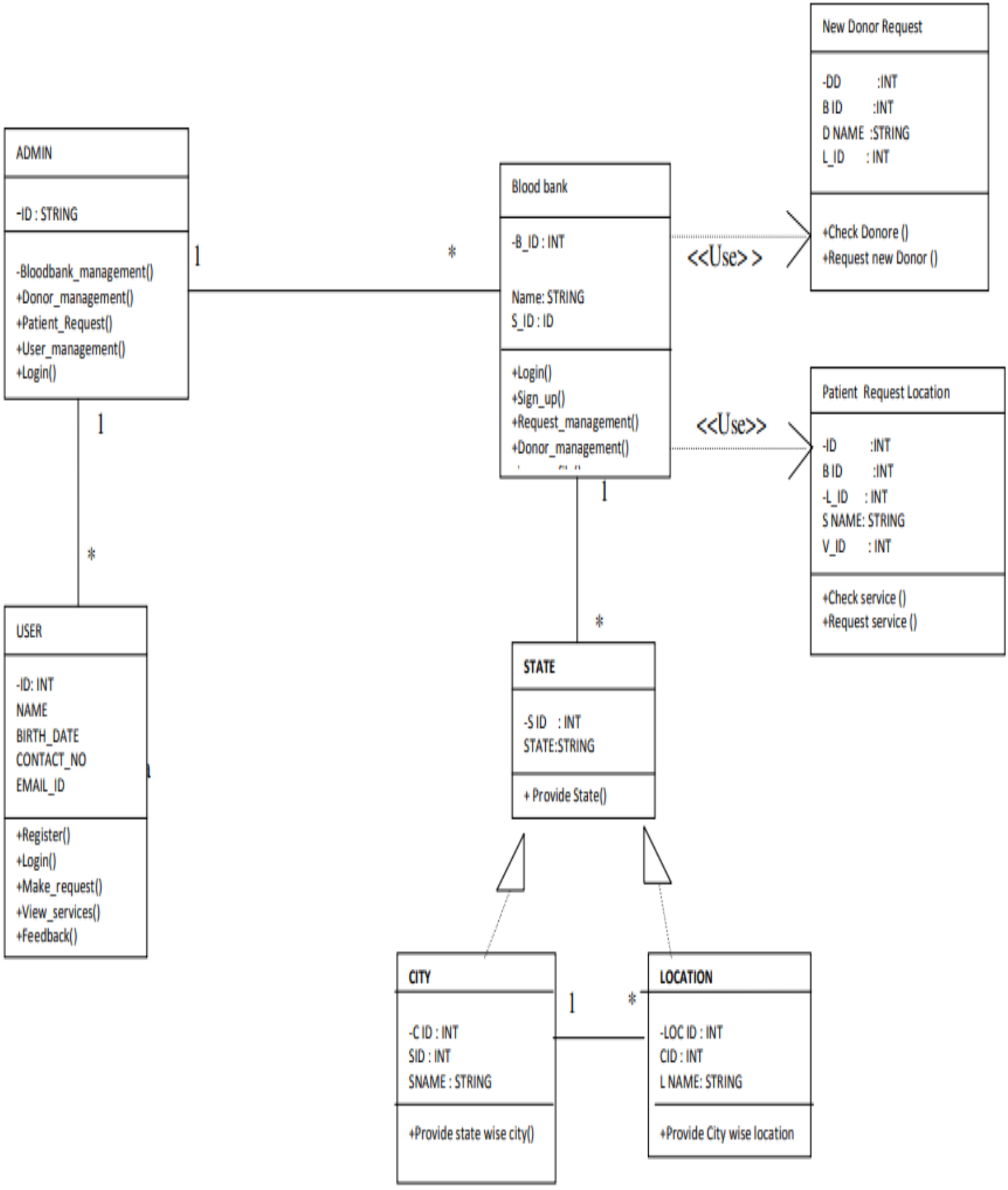
Donor :


Donor
1.0 Registration
2.0 login user/password
3.0 view profile
4.0 make new Blood Donation
5.0 logout
1.3 successfully reg.
2.3 successfully login
3.3 get reply
4.3 successfully new blood donation
5.1 successfully logout
1.1 check user details
2.1 check user/password
3.1 store profile details
4.1 store new blood details
Blood Bank Management
Data Base
1.2 fetch user details
2.2 fetch user/password
3.2 fetch profile details
4.2fetch new blood details

Patient :


patient
1.0 Registration
2.0 login user/password
3.0 view profile
4.0 patient Request for blood
5.0 logout
1.3 successfully reg.
2.3 successfully login
3.3 get reply
4.3 give patient request for blood
5.1 successfully logout
1.1 check user details
2.1 check user/password
3.1 store profile details
4.1 Search patient request for blood
Blood Bank Management
Data Base
1.2 fetch user details
2.2 fetch user/password
3.2 fetch profile details
4.2fetch patient request for blood details

Class diagram



TIMELINE CHART

Development Phase	50 Days						Duration (Day)
	0 to 05 Day	06 to 10 Day	11 to 20 Day	21 to 30 Day	31 to 40 Day	41 to 50 Day	
Requirement Gathering and Analysis							10
Design							10
Coding							20
Testing							5
Implementation & Documentation							5
Total Time (Day)							50

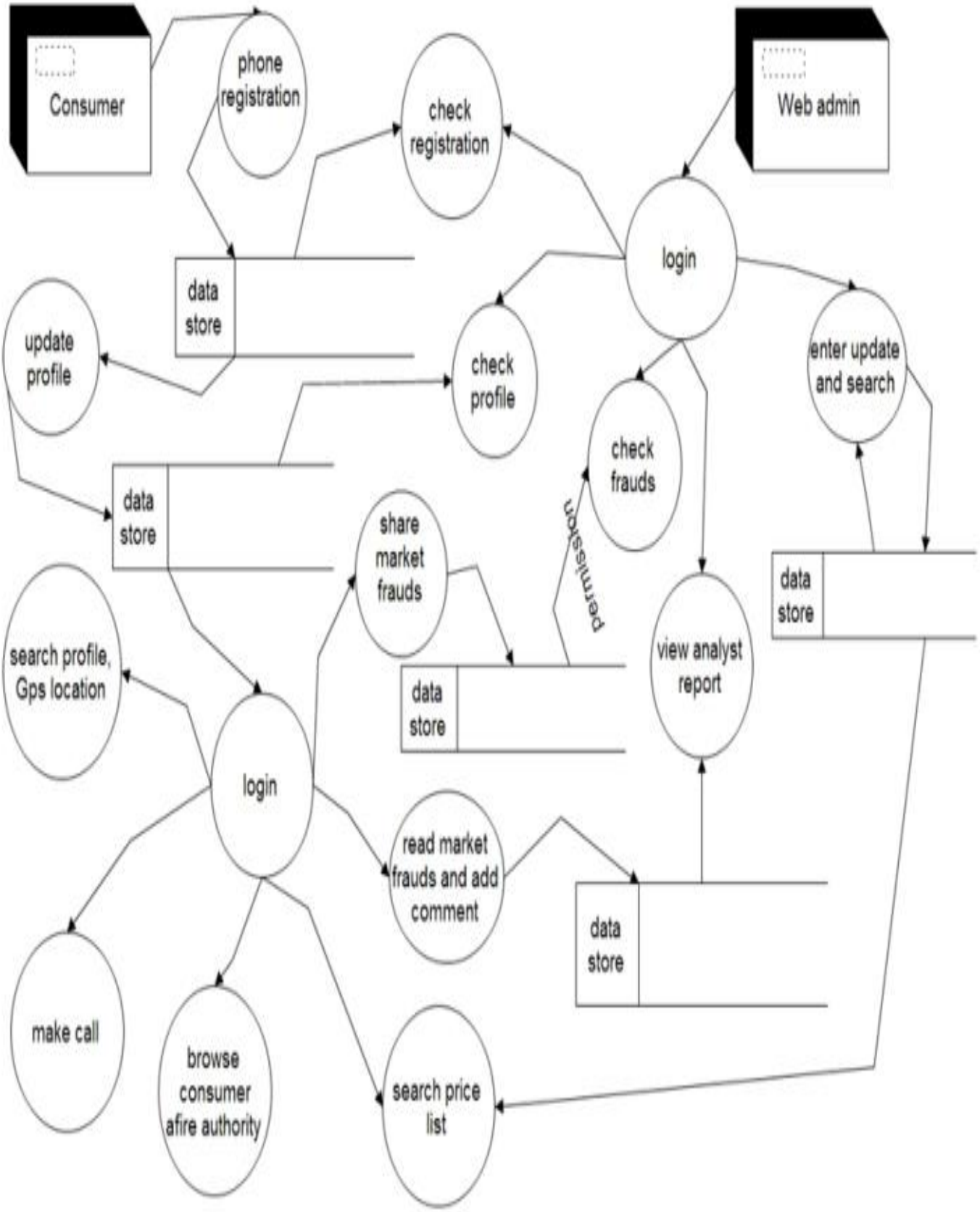


Figure 01: Data Flow Diagram

DATABASE DESIGN

Database is an integrated collection of data and provides a centralized access to the data and makes possible to treat data as a separate resource. Usually centralized data managing software is called a Relational Database Management System (RDBMS). The most significant different between RDBMS and other type of Data Management is the separation of data as seen by the program and data as store of on the direct access storage device. This is the difference between logical and physical data.

Data Dictionary:

The efficiency of an application developed using RDBMS mainly depend upon the database tables, the fields in each table and the way the tables are opened using the contents in them to retrieve the necessary information. Hence a careful selection of tables and their fields are imperative.

The database tables used in this system are created keeping the above points in mind. The tables used are given below.

Register Table:

Description: Used to Register the donor information and helpful for the people in need of blood to get details regarding the person with matching blood group and city

Field Name	Field Type	Field Length
Name	Varchar2	20
Addr	Varchar2	30
City	Varchar2	20
Sex	Varchar2	6
Wei	Number	5,3
Dob	Date	
Bgrp	Varchar2	10
Telo	Number	14

Telr	Number	14
Mobi	Number	14
Email	Varchar2	30
Lname	Varchar2	20
Pass	Varchar2	15

Detailed Description:

My project Online Blood Bank is to provide services for the people who are in need of blood by getting help from the donors who are interested in donating blood for the people. This project mainly elucidates the modules such as:

- Donor Registration
- Modifying Donor Information
- Donor Search
- Life Saving Contacts (in major cities)
- Mobilink Paging Services

These modules can be explained in detail as follows:

Donor Registration:

In this module, people who are interested in donating blood get registered in my site and give his overall details related to him, i.e. he fills in a registration form by giving the total details such as name, address, city, sex, wt, dob, blood group, telephone numbers, e-mail address, etc. He was also given two fields' username and password to fill such that he was a registered donor and he can enter the login form with his username and password and can modify his details if needed.

Modifying Donor Information:

The registered donor only is able to modify his details; no other person can modify his details as there was a login form which restricts others from entering the username and password providing high security for the details given by the donor. If at all the donor

wants to modify his details, he was forced to give his username and password to enter in. After giving the username and password it checks for the donor whether he is an existing donor or not and if the username and password matches, he can then able to modify his total details. If the username and password do not exist then he gets a message as 'Wrong ID and Password Entered, Try Again'.

Donor Search:

The people who are in need of blood can search in our site for getting the details of donors having the same blood group and with in the same city. They can directly click on the link search a donor and can select a city name as well as the blood group which he needs. He then gets the details of the donors who exist with in the city and the same blood group that he has selected. If no match was are found for the city and group selected by him he gets a message 'SORRY DONORS ARE NOT AVAILABE WITH THE FOLLOWING BLOOD GROUP AND AREA'.

Life Saving Contacts:

If at all the people in search of a donor doesn't get any match for their area and group then they will be provided a service i.e. he will be given a Contact Person details for their near by cities who have the details of many other donors with him. The people in search can call him and can get the details of the donors and can be provided services in this manner. But this life saving contact persons can be available only for a limited number of cities but not for all. These contact persons are the authorized persons of my blood bank.

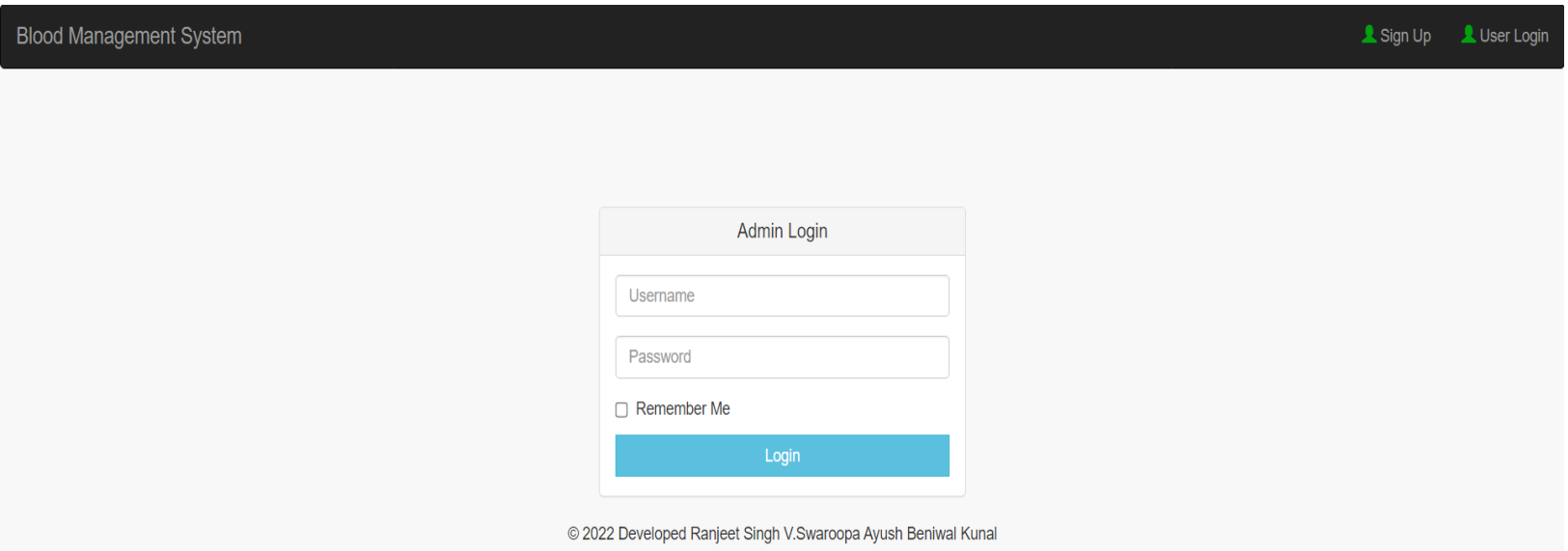
Mobilink Paging Services:

If at all the person in search of blood has found any problem in contacting the life saving contacts i.e. the contact persons, he was provided with a service called 'Mobilink Paging Service'. The person in search of blood was given a 'Mobilink' India's Largest Paging Service number such that the person who was searching can call the paging service number and can tell them the blood group needed and the total details from where they are contacting. Then the 'Mobilink' will broadcast a message on the pagers of their

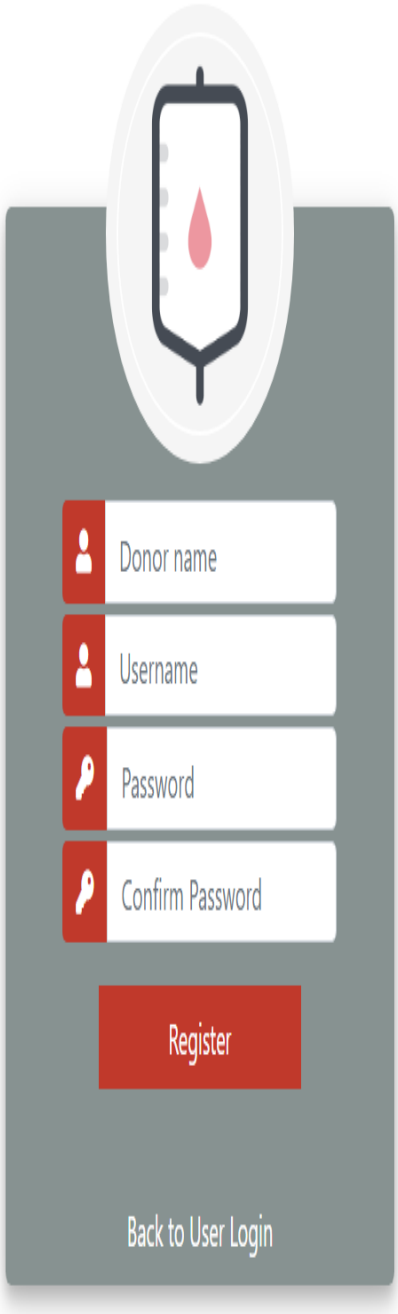
Subscribers displaying the Blood Group required, the Name of the Hospital, Contact Number, Patients Name, etc.

SCREENS

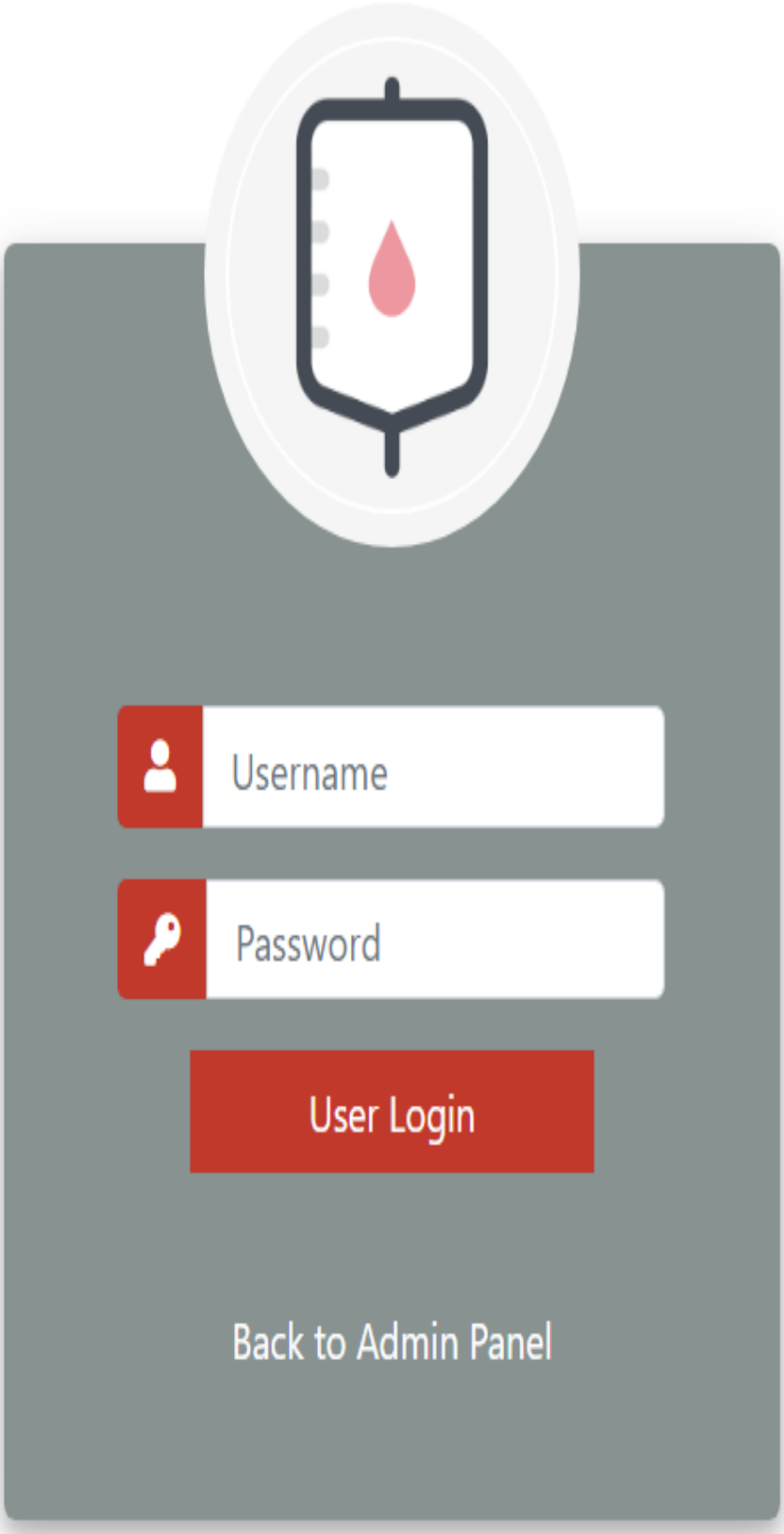
- Admin Page



- Register Page

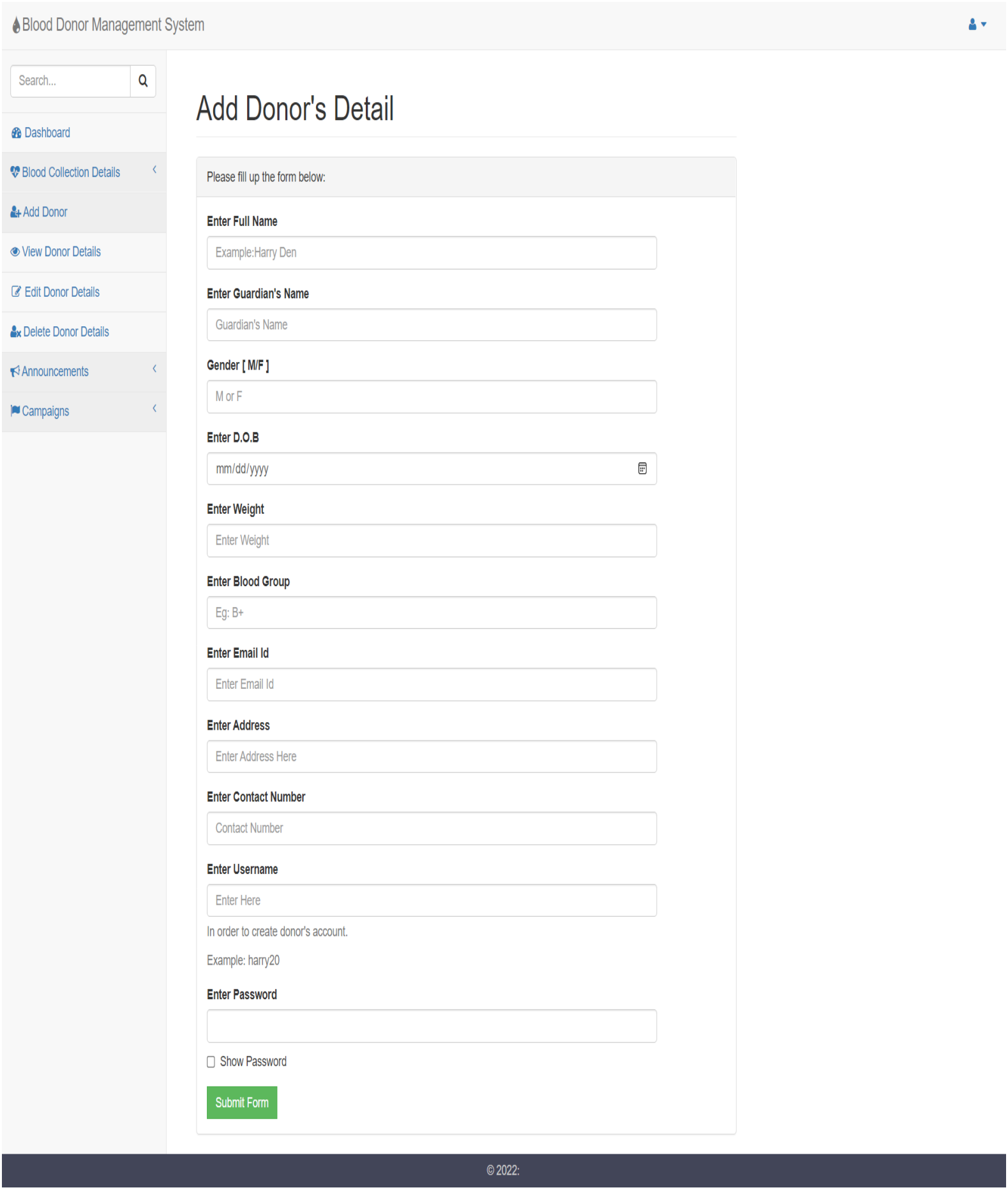


- User Login

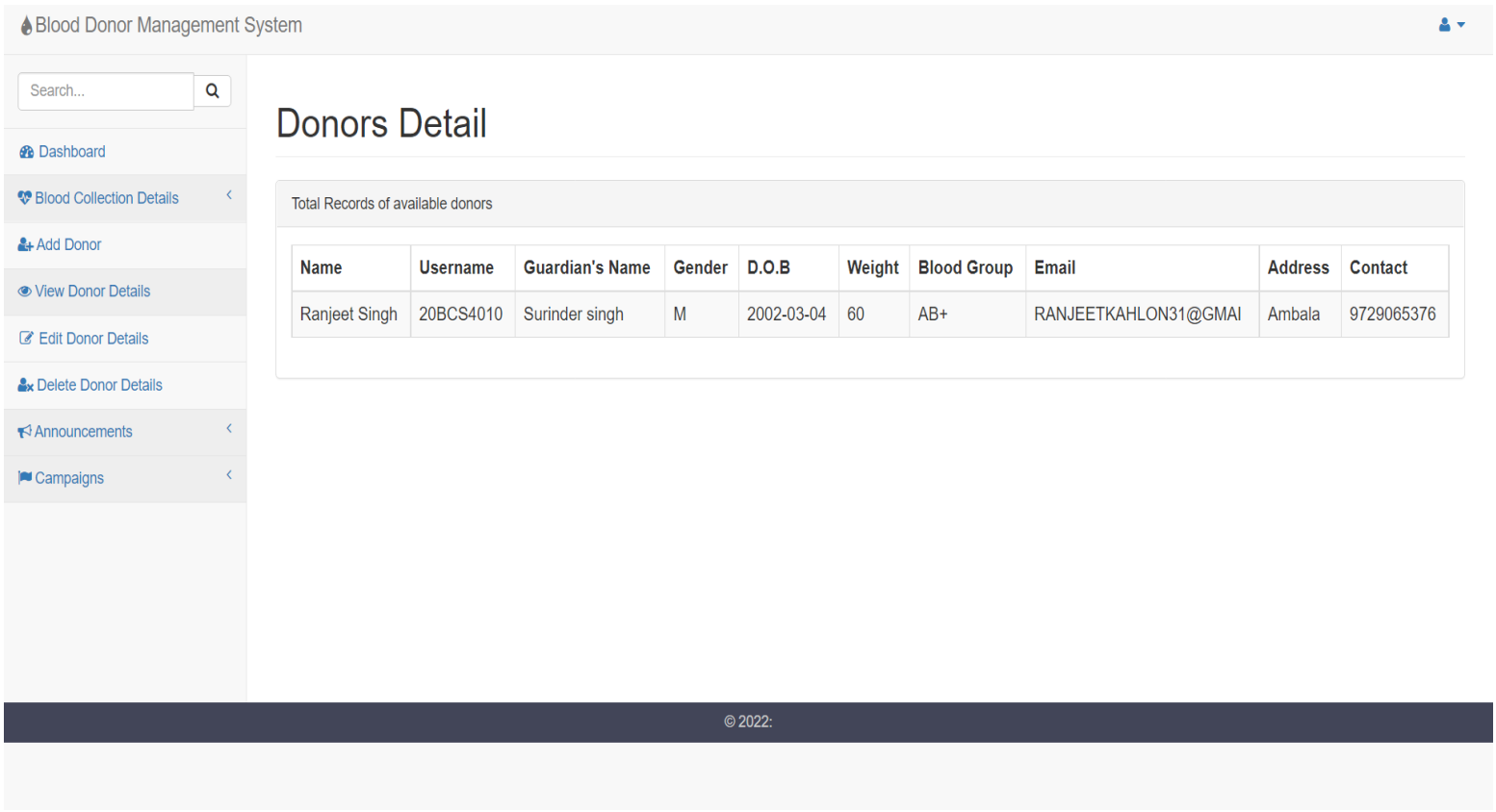


- Admin Dashboard

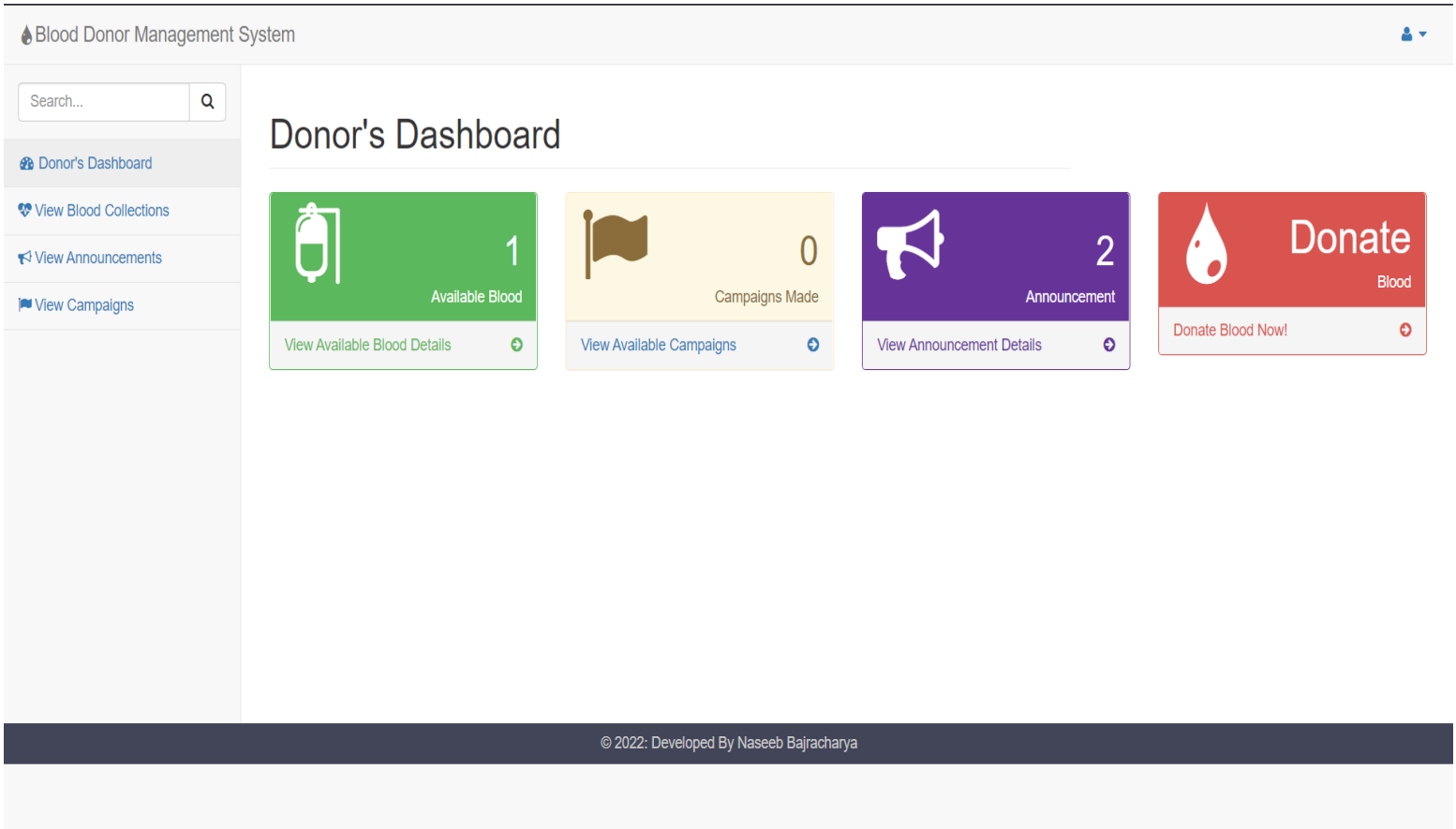
- Add Donor Details



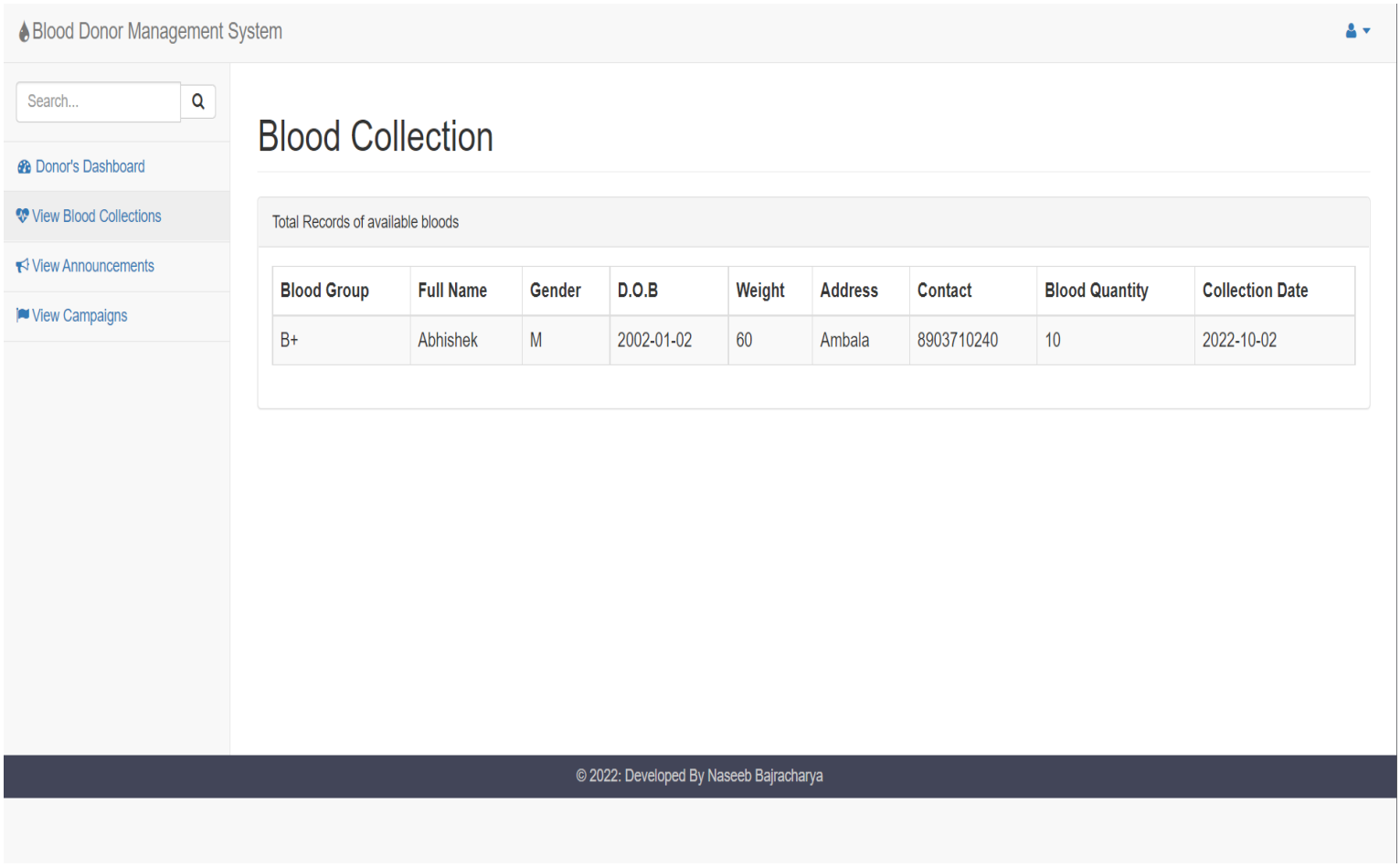
- DONOR DETAILS



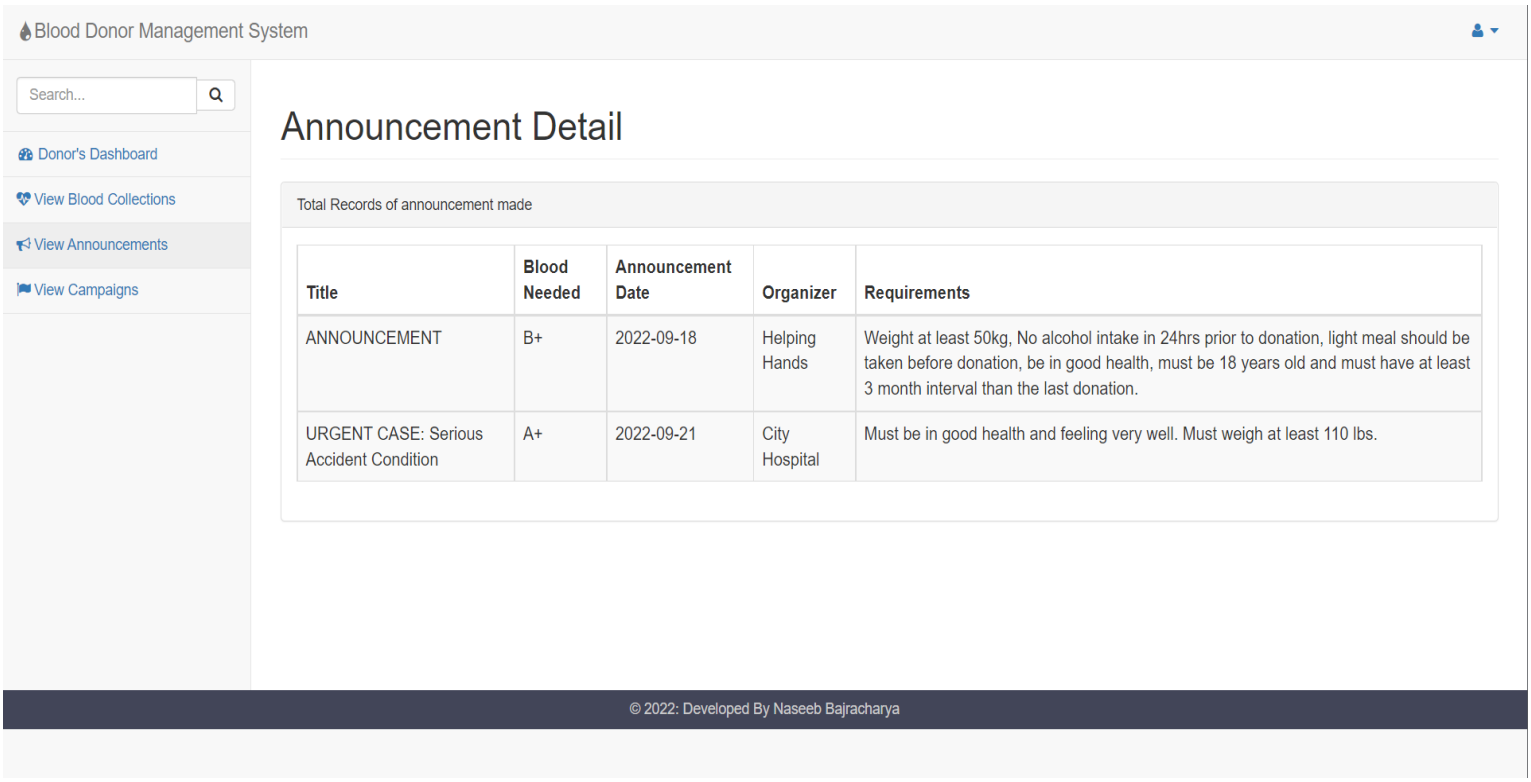
- Donors Dashboard



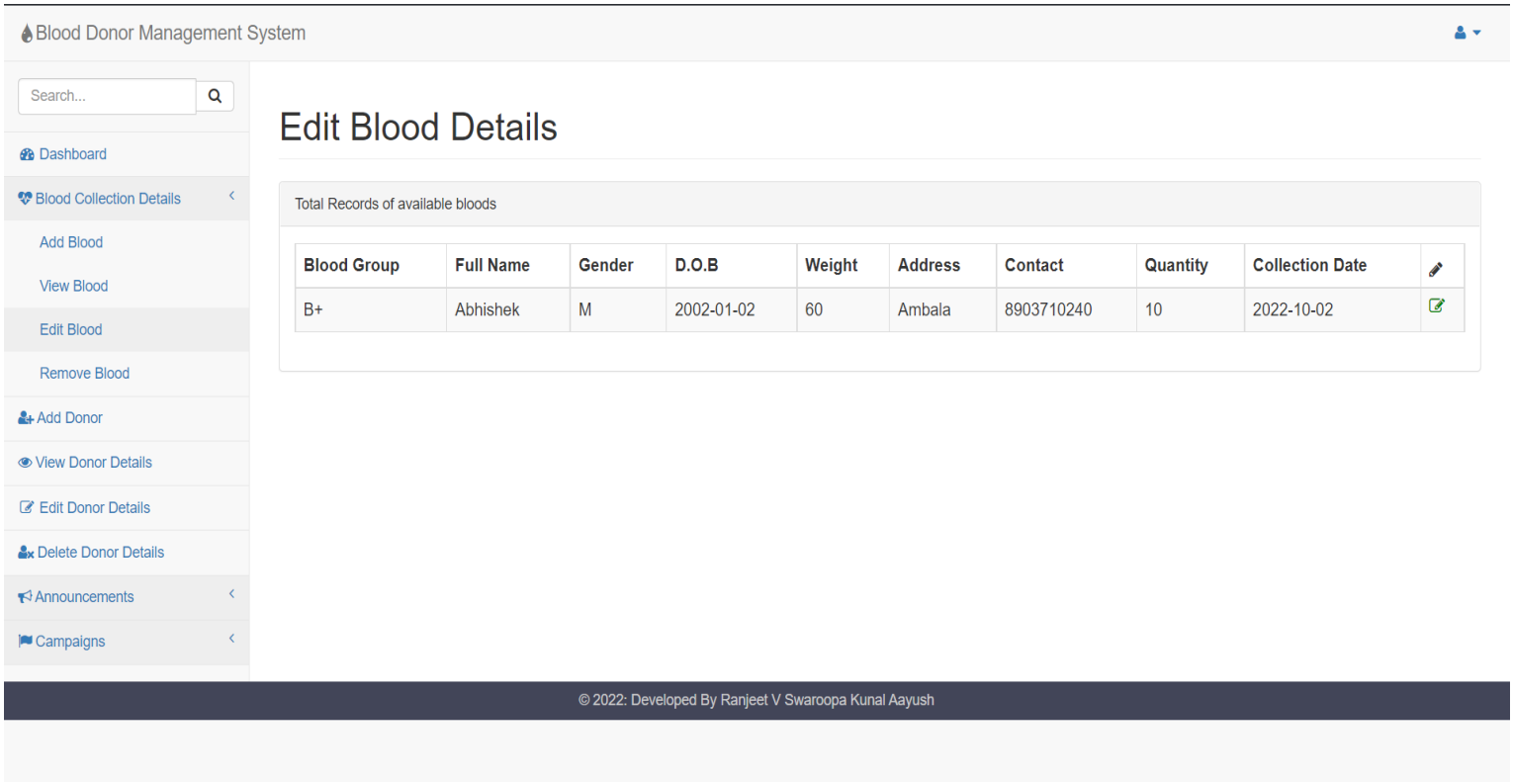
- Blood Collection



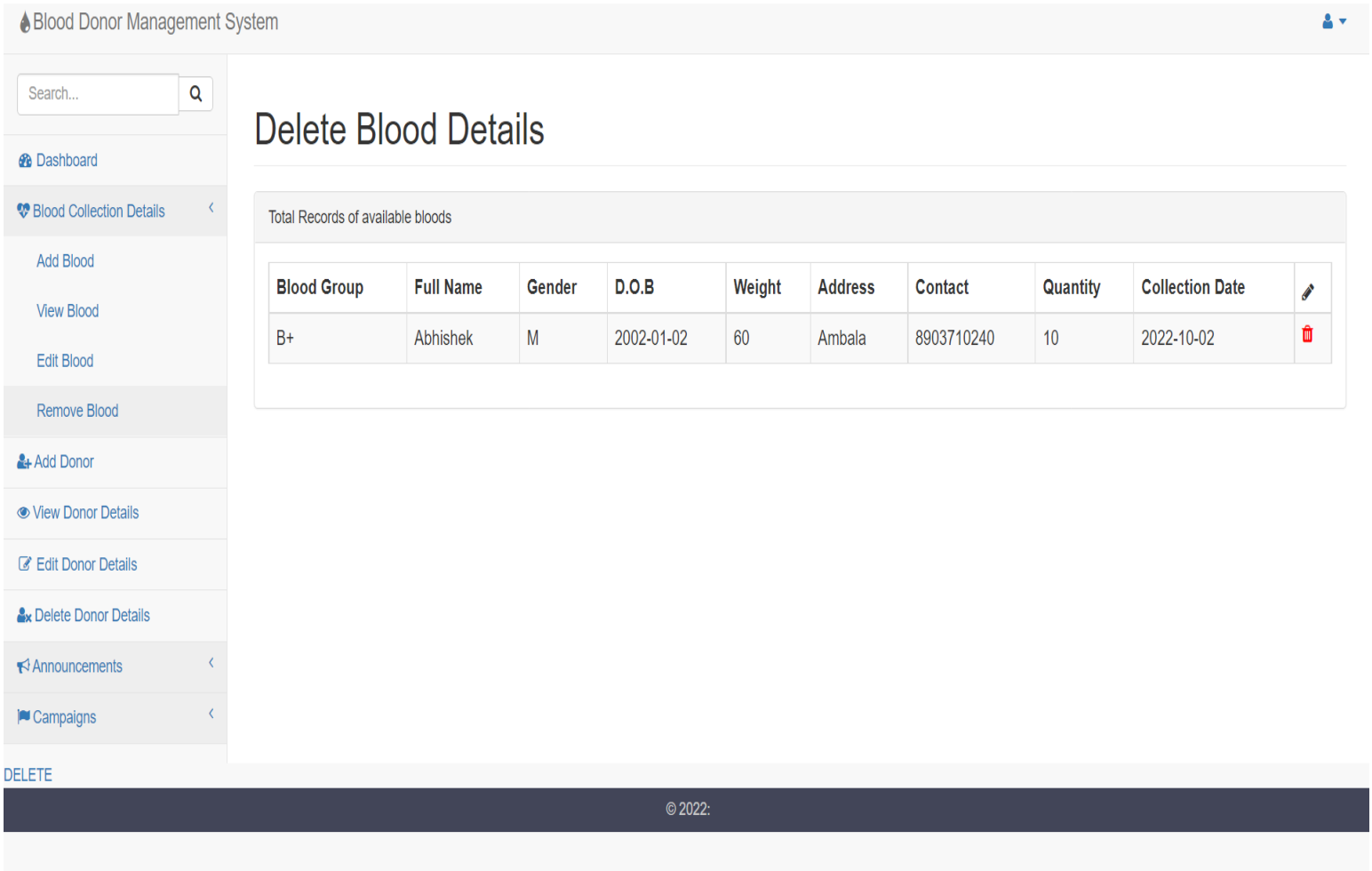
- Announcement Detail



- Edit Blood Details



- DELETE BLOOD DETAILS



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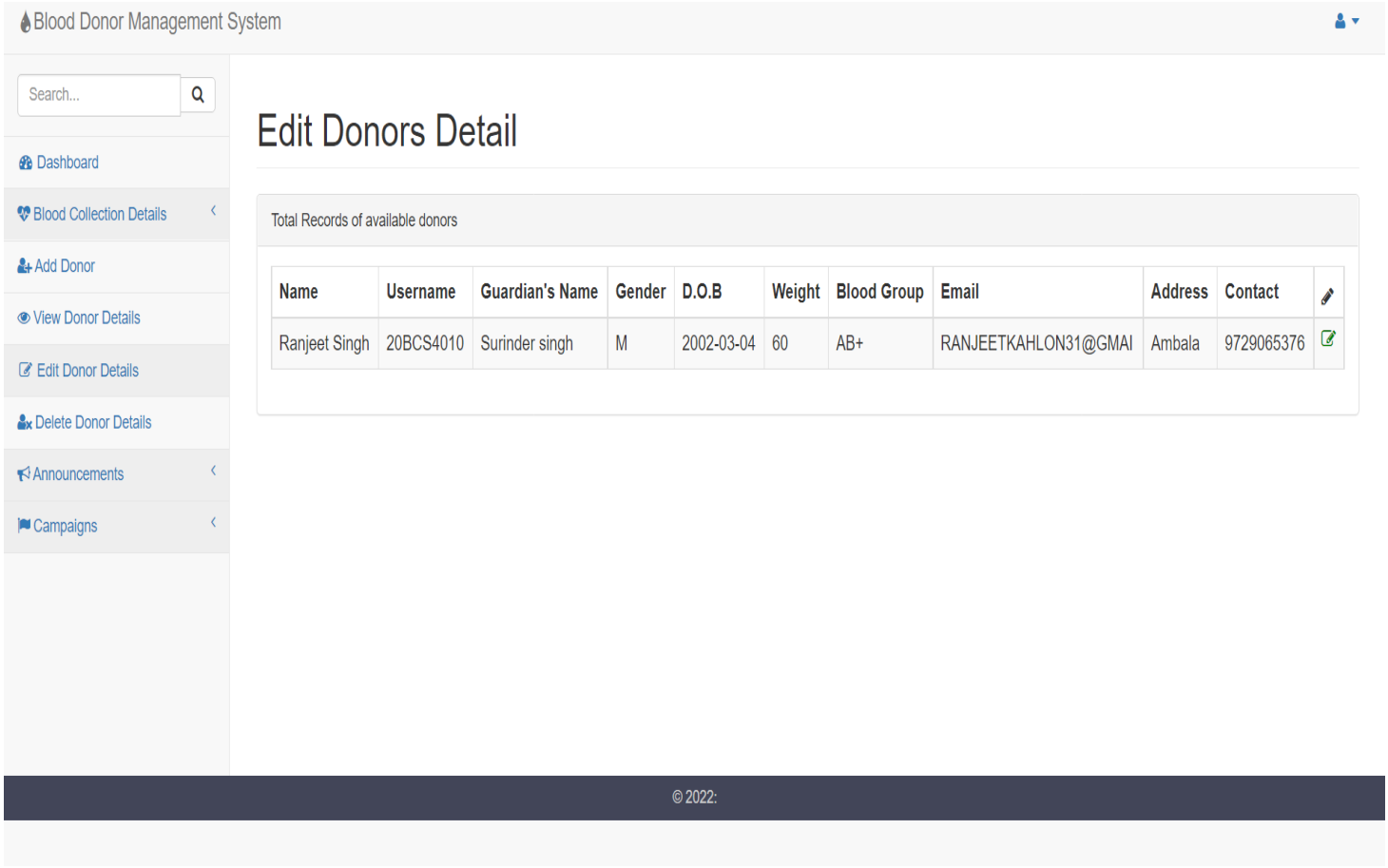

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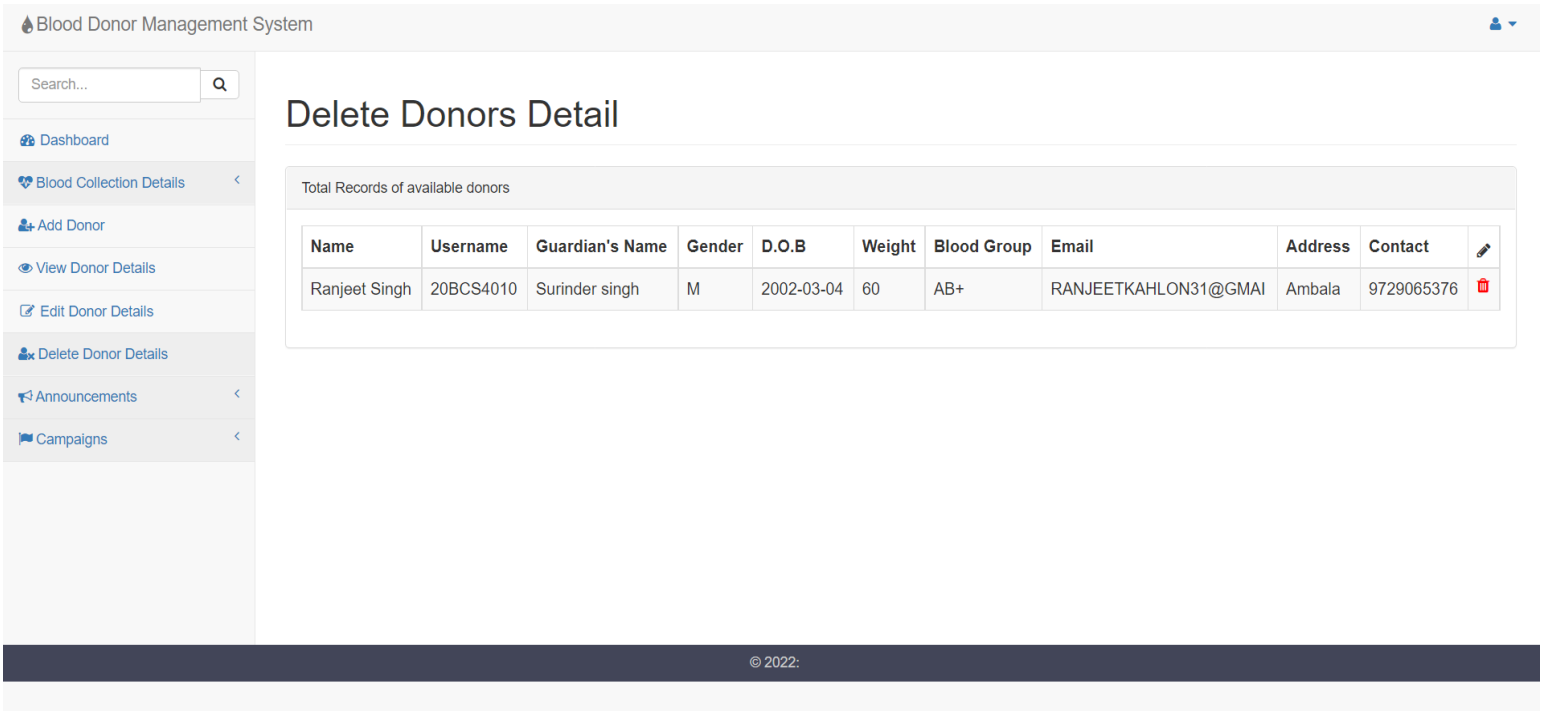

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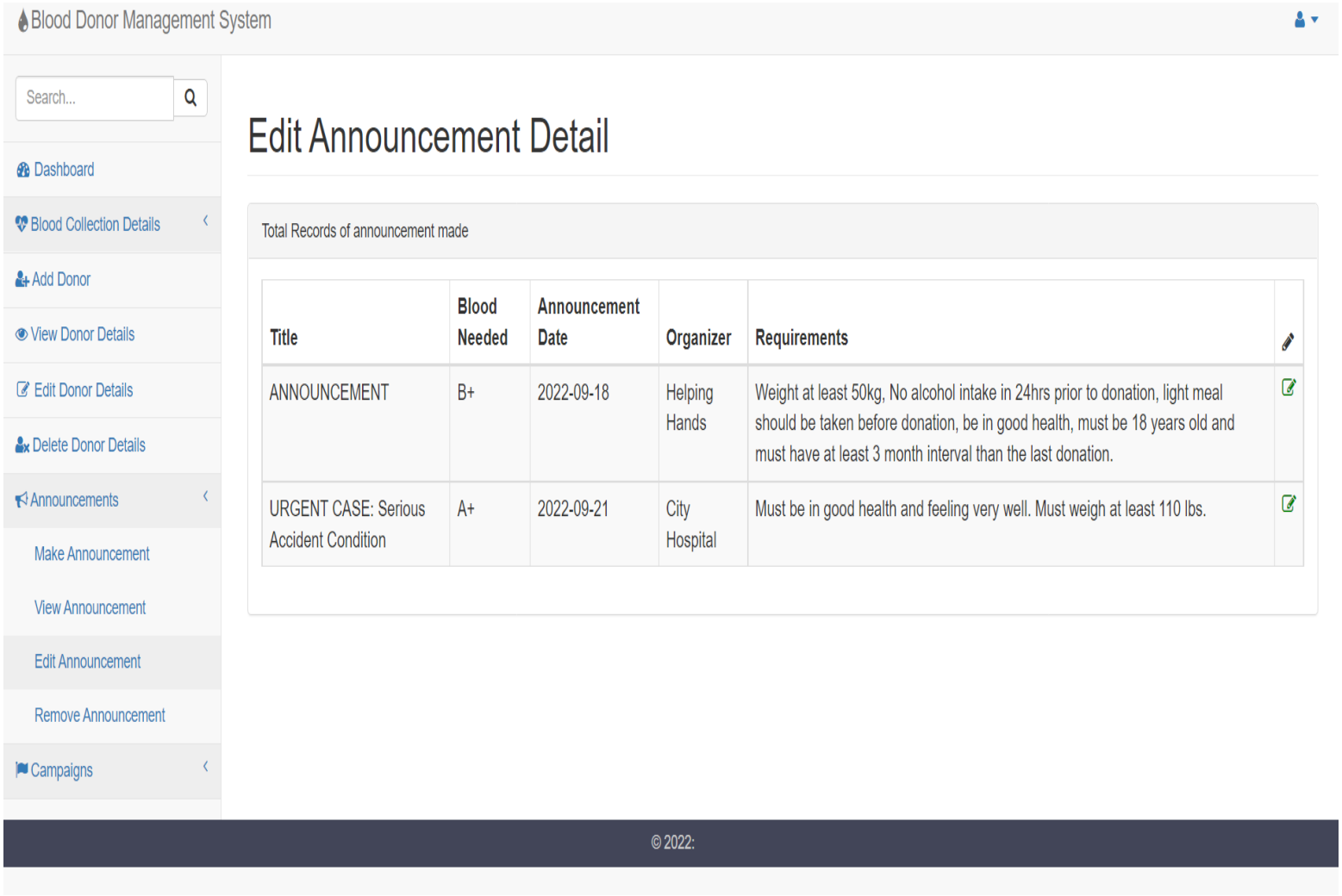

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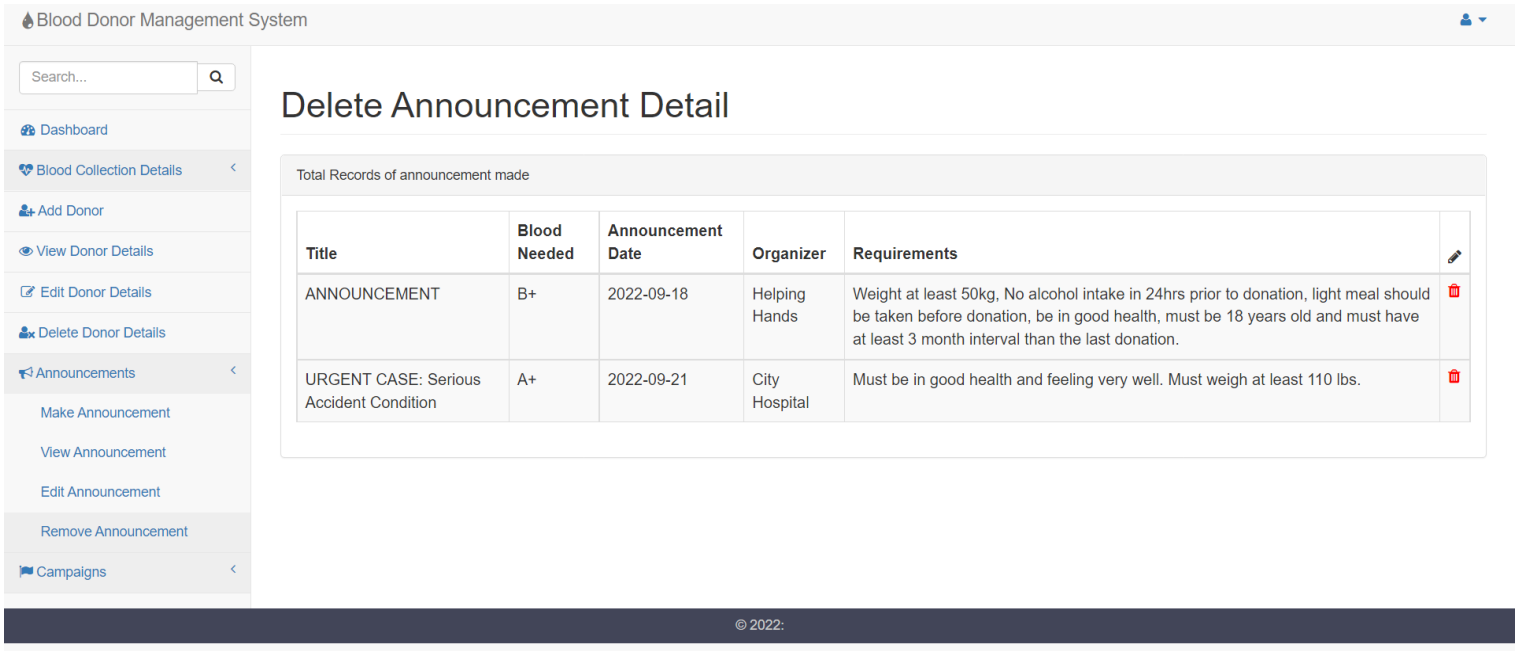

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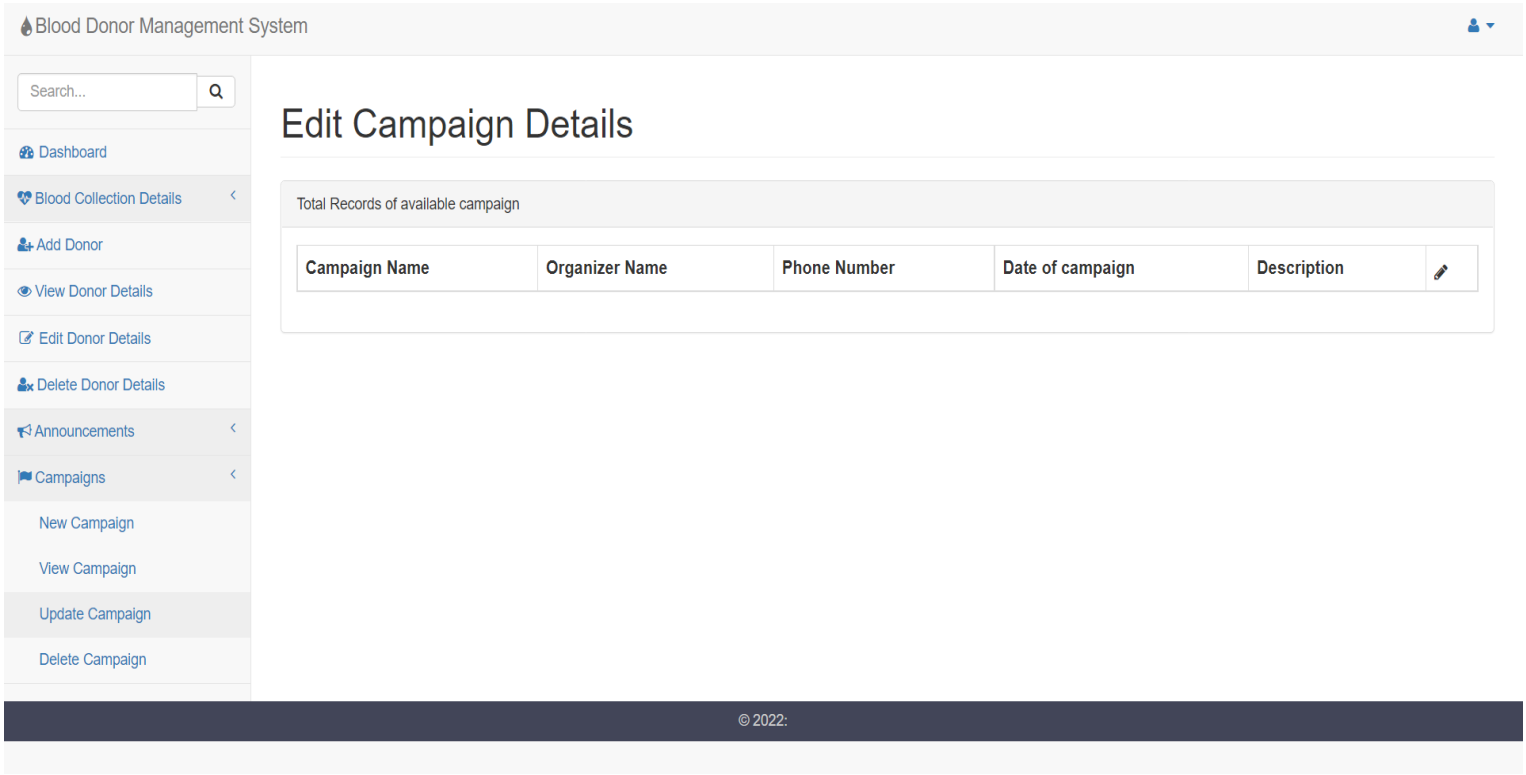

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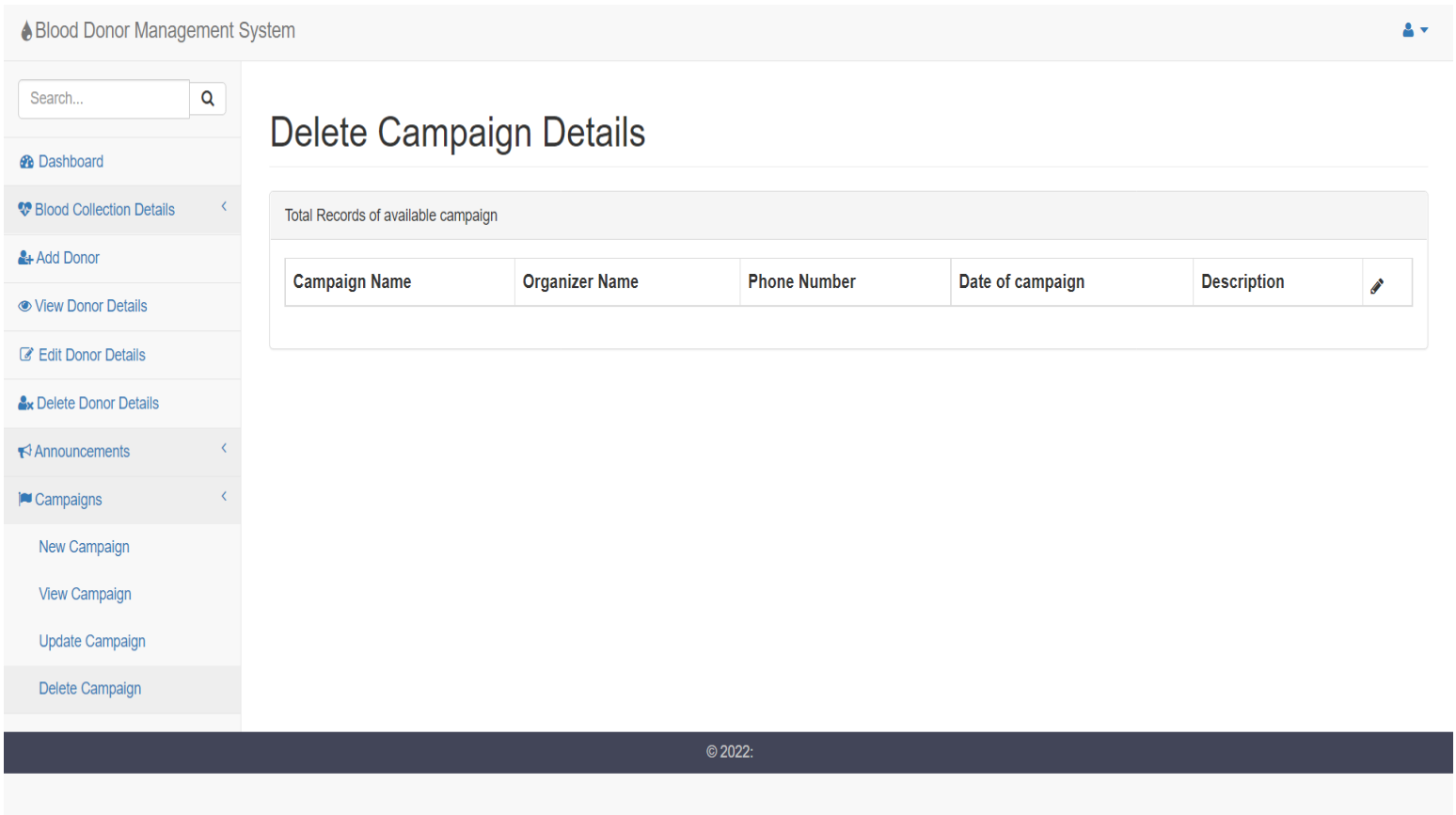

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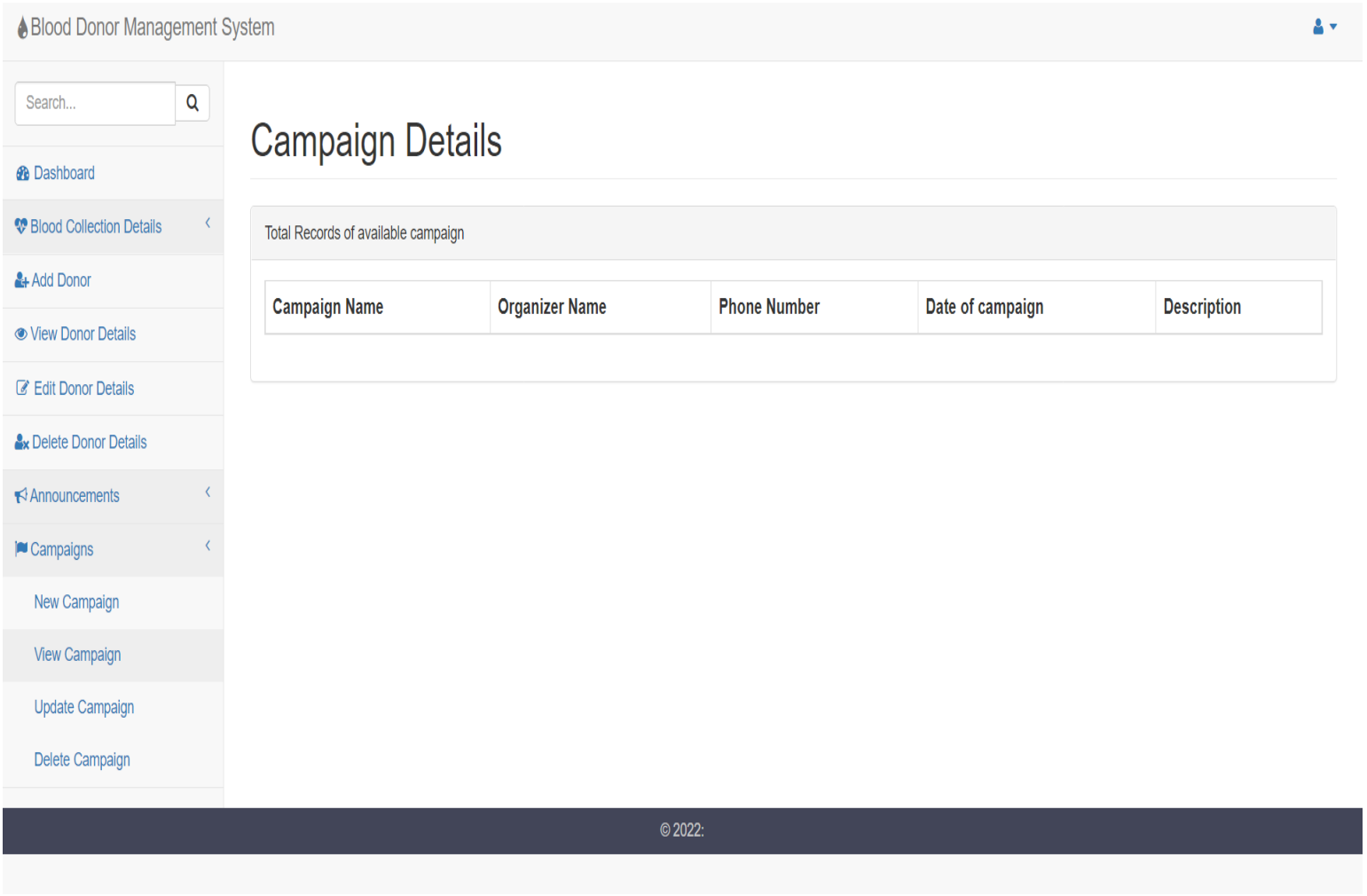

SYSTEM TESTING

System testing is the stage before system implementation where the system is made error free and all the needed modifications are made. The system was tested with test data and necessary corrections to the system were carried out. All the reports were checked by the user and approved. The system was very user friendly with online help to assist the user wherever necessary.

Test Plan:

A test plan is a general document for the entire project, which defines the scope, approach to be taken, and schedule of testing, as well as identifying the test item for the entire testing process, and the personal responsible for the different activities of testing. This document describes the plan for testing, the knowledge management tool.

Major testing activities are:

- Test units
- Features to be tested
- Approach for testing
- Test deliverables
- Schedule
- Personal allocation

Test units:

Test Case specification is major activity in the testing process. In this project, I have performed two levels of testing.

- Unit testing
- System testing

The basic units in Unit testing are:

- Validating the user request
- Validating the input given by the user
- Exception handling

The basic units in System testing are:

- Integration of all programs is correct or not
- Checking whether the entire system after integrating is working as expected.
- The system is tested as whole after the unit testing.

Other Testing Strategies:

Alpha Testing:

This was done at the developer's site by a customer. The software is used in a natural setting with the developer "looking over the shoulder" of the user and recording errors and usage problems. Alpha tests are conducted in a controlled environment.

Beta Testing:

This was conducted at one or more customer sites by the end-user of the software. Unlike alpha testing, the developer is generally not present. Therefore, the beta test is a "live" application of the software in an environment that cannot be controlled by the developer. The customer records all problems that are encountered during beta testing and reports these to the developer at regular intervals. As a result of problems reported during beta tests, software engineers make modifications and then prepare for release of the software product to the entire customer base.

Test deliverables:

The following documents are required besides the test plan

- Unit test report for each unit
- Test case specification for system testing
- The report for system testing
- Error report

IMPLEMENTATION AND EVALUATION

During the software-testing phase each module of software is thoroughly tested for bugs and for accuracy of output. The system developed is very userfriendly and the detailed documentation is also given to the user as online help wherever necessary. The implementation phase normally ends with the formal test involving all the components.

The entire system was developed using the ASP, HTML, JavaScript, Personal Web Server, and Oracle 8 as back end. The HTML is used to design the web page. The Personal Web Server is used to understand the client's request and to send response to them. The VBScript are used for client-side validations so that the user can enter only appropriate input in the input fields. The Oracle 8 is the back end tool where the database resides.

Hence the design of the entire system is user-friendly and simple the implementation has been quite easy.

CONCLUSION

This project has given me an ample opportunity to design, code, test and implements an application. This has helped in putting into practice of various Software Engineering principles and Database Management concepts like maintaining integrity and consistency of data. Further, this has helped me to learn more about ORACLE 8, ASP 2.0, HTML, VB Script, Adobe Photoshop 7.0 and Personal Web Server.

I thank my guide for his invaluable contribution in guiding me through out the project. I also thank my parents and friends who have supported and motivated me to complete this project successfully.

Blood banking management system considered to be one of the useful source and need for saving people at emergency . Compared to the paper work method for blood banking this online blood banking management is efficient, time saving , more productivity, more reliable and cost effective. While making the project we tried to focus on the problems that can be solved by this project. As compared to manual system , online based banking security comparatively more secure and accurate in means of data which can further can retrieved easily.

Extensibility:

The other features, which the Blood bank services provide, can also be incorporated into this Blood Bank. The Encryption standards can also be used to make the transactions more secure. The Socket Secure Layer protocol can also used in implementing the system, which gives highest security in the Internet.

Future Enhancement:

As there was a little number of contact person's information given, some people may face difficulty in getting blood fast. So i like to gather more information regarding the contact persons in other cities as well as villages and will provide much more services for the people and help everyone with humanity.

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