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SCHOOL OF ELECTRICAL ENGNEERING AND COMPUTING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

**WEB BASED BLOOD BANK MANAGEMENT SYSTEM FOR ADAMA, EAST SHOA BLOOD BANK**

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**Submission Date April 04, 04, 2019**

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# Definition, Acronyms and Abbreviations

ASTU- Adama Science and Technology University

OBBMS- Online blood bank management system

ABB- Adama Blood Bank

BBMS- Blood Bank Management System

UML-Unified Model Language

OOSAD - Object Oriented System Analysis and Design

JSON – Java Script Object Notation

SDK –standard development Kit

PHP - Hyper text Script Language

HTML -Hyper text markup Language

# 

# Chapter One

# 1.1 Introduction

## 1.1.1 Basic Project Overview

Blood banks often participate in the process of Collecting blood and other procedures such as managing stocks, approving blood requests and updating donation information. It will help us to find blood group with its most efficient take care of the blood and it is more easy to hand over the blood to Adama, East shoa blood bank to help people to get on time.

Today, mobile phones are such a familiar part of our lives that we don’t only use them for simply talking or texting others but in many other aspects. Mobile health (using mobile devices in health sector) is a young and dynamic field that could improve the well-being of all human beings around the world.

The inspiration of this project is to improve blood banks in Adama, East Shoa and to develop a blood bank management system a web-based database application system that is to be used by the blood banks or blood centers as a means to advertise the nationwide blood donation events to the public and at the same time allow the public to make online reservation and request for the blood.

The system keeps the record of all the donors, recipients, blood donation programs, rejected bloods. 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.

The system is also developed for the administrators, who can add, modify, delete, and query any donation 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.

NB: In this project we are trying to implement distributed database from centralized database of blood bank management system.

Here, we will try to design a distributed database system for blood bank management from centralized database system.

## 1.2 Statement of Problem

At present, the public can only know about the blood donation events through conventional media means such as radio, newspaper or television advertisements. There is no information regarding the blood donation programs available on any of the portal.

There is no centralized database of volunteer donors. So, it becomes really tedious for a person to search blood in case of emergency. The only option is to manually search and match donors and then make phone calls to every donor. There is also no centralized database used to keep the donors' records. Each bank is having their own records of donors. If a donor makes donation in different hospital, no previous records can be traced except if the donor brings along the donation certificate

Generally, statement of project includes:

* The operation of blood bank still is now is maintained in the manual system.
* The operation is tedious, time consuming and space consuming.
* Less awareness among people about blood donation and blood transfusion.
* Deaths due to lack of blood during operations.

## 1.2.1 Motivation

Web-based portal-android application is gaining more and more popularity in the research world, regardless of the fact that it's a recent concept in information technology. This is because it is a way of collaboratively doing tasks or solving problem. Now a days people are using various web applications to be successful in their business areas and also solving their problems such as sharing of knowledge and finding a particular location. So, that is why we are highly motivated to do our project on web-based application with some functionality that relates patient donor from mobile perspective. It is time for developing countries like ours to share the success and power of new application in solving problems in different areas.

Our System is a web enabled and mobile-based application (with some functionalities) to maintain day to day transactions in a blood bank.

# 1.3 Objectives

## 1.3.1 General Objective

To develop a web-based blood bank management system with supporting mobile application aimed to serve as a communication tool between patients (who need blood) and blood donor for Adama, East Shoa.

## 1.3.2 Specific objective

Specifically, goals and objectives of the Blood Bank Management System are as follows:

* To generate Blood bank portal and Android application for Donor to register for donating blood.
* To generate Donor, Blood bank admin, Hospital admin can register and login.
* Using system donor will get the notification whenever new blood donation camp takes place.
* New Donor also can make request for blood donation to nearest blood bank and also get appointment after request
* Admin of all respective departments can generate reports of the blood bank, blood stock; check the expiry date of blood.
* To provide a means for the blood bank to publicize and advertise blood donation programs.
* To allow the probable recipients to make search and match the volunteer donors, and make request for the blood.
* To provide an efficient donor and blood stock management functions to the blood bank by recording the donor and blood details.
* To improve the efficiency of blood stock management by alerting the blood bank staffs when the blood quantity is below it par level or when the blood stock has expired.
* To provide immediate storage and retrieval of data and information.
* To provide authentic and authorized features to the current system where private and confidential data can only be viewed by authorized user.
* To develop a database to keep the overall records associated with the management.
* Implement and Test the system.

# 1.4 Project Scope and limitation

## 1.4.1 Scope of Our Project

The scope of this project is developing is a web-based database application system withsupporting mobile application (with some functionalities) aimed to serve as a communication tool between doctor, patients (who need blood) andblood donor *to* facilitate the co-ordination between supply and demand of blood. Some are listed below:-

* To generate blood bank portal and android application for patient, admin, donor relation for donating-receiving of blood.
* To generate donor, blood bank admin, hospital admin can register and login.
* This project allows the blood bank administrator to publicize blood donation events. The public can view the venue and time of the blood donation drives to be held.
* The public can make online reservation on their desired session and date. The blood centers' administrators can then manage their appointments by either to approve or reject the appointments.
* The blood bank administrators can manage the blood stock starting from the blood collection, to blood screening, processing, storage, transference and lastly transfusion through this system i.e, responsible for storing blood donor records organizing, analyzing, and preparing reports.
* The system will also give an alert to the administrator whenever the blood quantity is below its par level and for some functionality on android OS for doctor seek.
* The records of all donors and their history are kept in distributed database that from centralized database and thus reducing duplicate data in the database. Donors can make blood donation in any blood center and their records are maintained by the BBMS.
* The system is able to generate pre-defined reports such as the list donors, patients, and hospitals, the blood quantity in a blood bank, and the work flow for each blood donation process.

## 

## 1.4.2 Limitation

There are short comings in web-based application in the blood bank management system:  
Slow internet access in some regions. The new system is only in English language and mobile part is only with some functionalities of web.

# 1.6 Methodology and Software’s used

The model that we will use in our system development life cycle is the waterfall model which constitutes the following phases: Project Initiation and Planning, Requirement elicitation, Analysis, Design, Implementation and Testing

**1. Project Identification and Selection**

In this project, we aimed to develop an online blood bank system which will focus mainly on managing the donor’s blood information. Anyone who is interested in blood donation can donate the blood at the hospital or blood donation centers.

**2. Project Initiation and Planning**

To begin the project, we have gather user requirement of this system and prepare the scope and objective. The results from this phase are scope and limitation, objectives, cost and benefits, feature of the proposed system and user interface design.

**3. Analyzing System needs**

We have studied and identified problems of existing system, then we develop data flow diagram for the existing system.

**4. Designing the Proposed System**

Based on the analysis phase, we converted E-R diagram into relational database model and created data dictionary and DFD and user interface are designed in this process.

**5. Development of the Proposed System**

In this phase, we are going to convert the design of proposed system to computer software, which includes computer programming using phpMyAdmin as a

software tool written in PHP, which is intended to handle the administration of MySQL, and translating the design specifications into the computer code.

**6. Testing the Proposed System**

This step is the process of testing whether the programming code will work correctly with the conditions in our system or not. In this phase, we will fix bugs in order to produce a system with maximum performance.

**7. Implementing the Proposed System**

We wish to launch this system on the internet, so that donors are able to view their blood donation records online and administrators can create, update, delete, and query records conveniently.

### 1.6.1 Requirement gathering methods

***I***nterview

For the purpose of gathering requirement from users we are going to have frequent interviews with users who are expected to be users of the system that we are going to develop.

* By Observing the existing problem
* By discussing and analyzing the problems with project team.
* The other method is document analysis; we reviewed documents such as books, e-books and some previously done project reports which are used as a reference to design the system we are going to develop.
* Internet

Internet is our main source of information for the requirement of our project

### 1.6.2 Systems analysis and design methodology

**In Analysis and Design**:- Object Oriented System Analysis and Design (OOSAD) using Unified Modeling Language (UML) and Visio Software. Because of the following reasons:

These techniques enable to reduce the communication gap between user and designers.

These techniques enable designers to model the real world accurately.

These techniques have usability features (it allows to use codes repeatedly on other system).

Allows full exploitation of the power of object-based and object-oriented programming languages

Object-based models appeal to the workings of human cognition, and hence the human input into the development of a software system is likely to be more natural and less error prone.

**In Implementation**

Graphics design tools (like Photoshop, paint)

Database (MySQL)

Programming language (PHP, Android SDK)

Development tools (Enterprise, ADT)

### 1.6.3 Tools

The programming tools that the project concentrates are the following:

* Software requirements:
* Enterprise Architecture–to design Sequence Diagram, Class Diagram, Activity diagram and Use case Diagram.
* MS word 2007: for documentation.
* Paint: for editing
* Ms power point for presentation
* Operating system: window 10 , or higher
* IDE
* Programming language (JSON, Android SDK, PHP)
* Web server : xampp
* Visual studio.net 2005/2008
* Gantt Chart
* Hardware requirements:
* Printer: for printing document
* Computer
* Secondary storage device
* flash disk(8 GB)
* Hard disk:200GB
* Paper, pen, projector,
* Intel(R) core (TM) i5-6200U [CPU@2.3GHZ](mailto:CPU@2.3GHZ) 2.40GHZ.

## 

## 1.7 Feasibility study

A feasibility is conducted to identify the best system that meets the all the requirements. This includes an identification description, and evaluation of the proposed systems and selection of the best system for the job.

### 1.7.1. Economic Feasibility:

Economic feasibility is the most important and frequently used method for evaluating the effectiveness of the proposed system. Cost benefit analysis is usually performed for this purpose. The organization does not using any media advertisement because it asks more budget. This project is economically feasible because it makes all information online and every one (Urban-rural) can get the information from the site. Everyone can advertise to his/her friend in simple way.

### 1.7.2. Technical Feasibility:

The organization was using manually and in some part automation. For example they use automation for only storing the information and data. Therefore, our system simplifies their work effectively.

### 1.7.3 Time feasibility.

This feasibility is most important because time has more effect on project success/failure. The organization was decided when reservation was made for the voluntary donors. But this project is very important to make reservation on the session and day that they are free.

## 1.8 Significance of the project

As the consequence of the proposed system, there are inevitable connotations as outcome from this application. The significance of our system includes the following:

* It provides fast, efficient and better service for customers.
* It Avoids data redundancy and inconsistency.
* It is very user-friendly and easy accessibility of data.
* Number of personnel required is considerably less.
* Provides more security, reliable and integrity to data.
* The blood bank medical lab technicians also gain the advantage of having an automation system in assisting his/her works.

## 1.9 Cost Breakdown and Schedule

**Cost Breakdown**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Cost type | Quantity | Unit price | Total price  (birr) |
| 1 | Paper | 2 pack | 120 | 240 |
| 2 | Pen | 7 | 4 | 28 |
| 3 | Flash memory | 2 | 80 | 160 |
| 4 | Print | 120 | 1 | 120 |
| 5 | Backup Copy | 320 | 1 | 320 |
| 6 | Tea/coffee | -- | 50 | 50 |
| 7 | Internet | -- | -- | -- |
| 8 | Transportation | -- | -- | 200 |
| Total 1118 birr | | | | |

## Time scheduling

In order to accomplish time effective and efficiently, we used the Gant charts to schedule times in all phases of project we do. Its major phases are listed below:

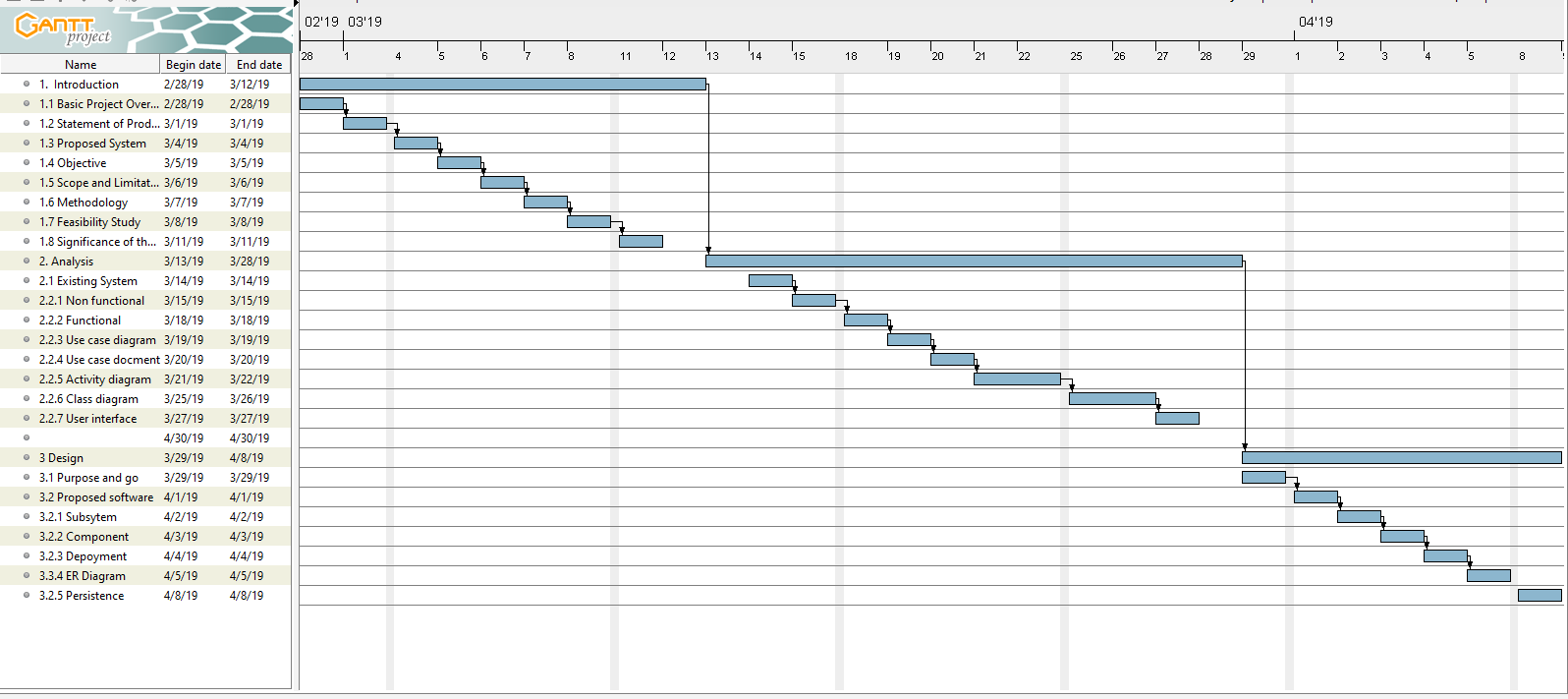
****

Figure 1.1-time scheduling

## Team Composition

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **ID** | **E-mail** | Responsibility |
| Selamawit Mekonen | R/00878/07 | [Selammekonnen512@gmail.com](mailto:Selammekonnen512@gmail.com) | Requirement Gathering, Designing, analysis,  Implementation,  Programming Coordinating, and Testing |
| Sisay Darcho | R/00889/07 | [Sis66lucky@gmail.com](mailto:Sis66lucky@gmail.com) | Coordinating,  Designing, analysis,  Implementation,  Programming and Testing |
| Simon Bekele | R/00883/07 | [simonbekelebarassa@gmail.com](mailto:simonbekelebarassa@gmail.com) | Programming, analysis, Designing,  Implementation,  and Testing |
| Sitotaw Ayele | R/00892/07 | [ayelesitotaw@gmail.com](mailto:ayelesitotaw@gmail.com) | Requirement Gathering, analysis, design, implementation and Testing |
| Sitmera T/Mekonen | R/00891/07 | [sitimeratesfamekonnen@gmail.com](mailto:sitimeratesfamekonnen@gmail.com) | Requirement Gathering, analysis, design, implementation and Testing |

## 

# CHAPTER TWO

## Existing System

## 2.1 Major Functions of the existing system

* The existing system has he following major functions: -
* The company use human power for awareness creation by organizing clubs.
* They decide when and where the reservation for blood donation can be hold.
* They are usingmanual system.

**Analysis of the Existing System:-**

There are two types of process in the existing system: the blood donation process by donors and the blood request process by hospitals. In both processes, an administrator is in charge of managing the blood inventory in the blood bank.  
**Blood Donation Process by Donors**:-  
When a new donor comes to donate blood, they are required to fill out their  
personal information during the registration process before making a donation.  
After the donation, the donor is given a donor identification card with their name, blood type and a barcode to be used as a reference for future donations The barcode is used to retrieve the donor’s record containing their personal  
information, medical history and donation information, including blood results.  
Only blood bank administrators have the authority to access the donor’s records, since the system is only available for their use within the organization. This makes it difficult for donors to make changes to their personal information within the system. That is, for donors to update their personal information, such as their phone number, mailing address, or e-mail, they cannot update the information by themselves, but have to contact the blood bank center to update their information.  
At the back the card is a table that contains number of donations, date, location, and the blood collector’s signature. Existing donors can submit their donor ID cards to retrieve their personal information and donation records and start the blood donation process, and they will be given a new card after they have donated blood for a total of eight times. Having a donor ID card may be a tangible reminder to people that they are helping lives as a blood donor; however, possessing a physical card comes with drawbacks such as loss or damage. To ensure donors can still identify themselves with the system, other credentials, such as username and password, can be used as a safeguard if their donor ID card is lost or damaged.  
If the donated blood is disqualified, the donor will be notified through postal mail that their blood component is reactive to viruses meaning that there is a positive result of the blood being infected, and the organization will also inform the donor to perform another blood test at the blood bank to confirm the result of blood. If the blood is qualified, the administrator then will deposit the blood into the inventory for future requests.  
**Blood Request Process by Hospitals**:-  
Hospitals can request for blood by calling in or e-mailing the blood bank the type of blood and the quantity that is in need. The administrator is responsible in checking the availability of the blood type according to the request. If the  
requested blood type is available, the administrator will withdraw the blood from the inventory and transfer it to the hospital. However, if the requested blood is unavailable, the administrator will send an e-mail to inform the hospital.

### 2.2 Users of the current system

1) System Owner**:** The Blood Bank

2) System Users:

* **Administrators:** has full privilege on the system's functions
* **Workers:** has privilege on the system's functions as assigned by the administrator
* **Public:** can view the blood donation events and donate or can make requests for donation (Donorand Recipientsfall under this category)
* **Doctor:** A person who treat patient.
* **Blood seeker:** He/she who search for blood donor, find donors at emergency zone, request or report to admin panel.
* **Lab Technician:** He/she tests donor seek and record the result.

### 

### 2.3 Drawback of the current system

Drawback of the current system includes: -

* The operation of blood bank still is now is maintained in the manual system.
* The operation is tedious, time consuming and space consuming.
* Less awareness among people about blood donation and blood transfusion,
* Deaths due to lack of blood during operations,
* The patients cannot get the information of donors easily.
* Consumes a lot of manpower.

## 2.4 Business rule of the current system

1. Age of the Donor must between 18 to 60 to donate the blood.
2. Weight of the Donor must greater than 45 kg.
3. For weight 45kg to 50kg, 350ml amount of blood is received
4. For weight greater than 50 kg, 450ml amount of blood is received.
5. If Weight is greater than 50kg, but length is not appropriate 350ml amount of blood is received.
6. If you have desire to "give back" to the community in every 3 Months.
7. No donation if the Donor have any disease and not in proper health condition.
8. First In First Out(FIFO) rule
9. If the donor who donates the blood wants the blood before 3 months, he can get the blood free from the blood bank.
10. The blood in the blood stock is expired after 35 days.
11. Donor:-

* To be able to view their donation records, including where and when they made donations, and the blood results for each, to learn of their donated blood quality and schedule their next donation.
* To be able to view and update their personal information, including name, contact address, and phone number, to keep their donor’s information record up-to-date with the blood bank.
* To be notified of the blood results of their previous donation by email to know the success of their donation.

1. Administrator:-

* To be able to create, update, delete and query donor’s records in order to manage donor information.
* To be able to create,update,delete and retrieve donation records to manage information about donations are made.
* To be able to withdraw blood from the inventory and keep a record of blood stocks to always keep count of the blood bags.
* To be able to create,update,delete and retrieve request records from hospitals to manage hospital requests for blood.
* To be able to deposit in to inventory when donations made.
* To be able to create,update,delete and query hospitals record in order to manage hospitals information.
* To be able to send e-mails to donor’s for their user account and blood results through the system.

# CHAPTER THREE

## PROPOSED SYSTEM

## 3.1 Overview of New System

The system that we are going to develop can solve different problems that we have mentioned in the existing system. In general, this application will reduce the cost, time, and effort of the user and also it will provide such an easy way to use it for the user.

The proposed method is to develop a web-based database application system withsupporting mobile application aimed to facilitate the co-ordination between supply and demand of blood so that the blood donors are available easily within the required time . Blood bank management system is an integrated information system whose aim is to manage the blood and blood supply chain.  
 The proposed system is used by the patients and/or relatives of the patients to notify their blood requirements and by the living donors to be aware of these requirements.

The system consists have the following parts: -

**Web-based system (Administrator and blood banks):** A web application that can be used by the admin to add blood requests of patient after successful login. Admin will fill the details of blood request like patient name, blood group, contact number and can edit the address. If admin submits the form for blood request notifications will send to the donors. If there is any problems find in the blood, admin will notify that to the user. Admin can select the donors by mobile number or name.

This application helps blood banks to provide the blood as quick as possible when their stocks are insufficient. The application sends periodically actual location information of available donors to main system and the blood requests to the donors. In this way, it provides an uninterrupted communication between the blood banks and volunteer donors.

The project has been planned to be having the view of distributed architecture, with centralized storage of the database. The application for the storage of the data has been planned. Using the constructs of MS-SQL Server and all the user interfaces have been designed using the PHP technologies with xampp server.

The database connectivity is planned using the “SQL Connection” methodology. The standards of security and data protective mechanism have been given a big choice for proper usage.

The entire project has been developed keeping in view of the distributed client server computing technology, in mind. The user interfaces are browser specific to give distributed accessibility for the overall system. The internal database has been selected as MS-SQL server 2000.

**User (mobile-based system):** It is with some functionality like login, registering, viewing patient details, etc. User should register for this app. With their name, contact no, Email, blood type, etc, after successfully register user can get notification of blood request. The user can make decision on the request whether he accepting the request or ignoring the request. Our blood bank management system from mobile application has only doctor -blood seeker case designed to minimize the problem of current system which is described in the problem statement. The application should be effective at the time of registering, searching and view patient detail. Doctor can get information like patient details.

The purpose of this system is to develop a blood donation service app and to assist in the management of blood donor records where the ease of controlling the distribution of blood in various parts of the country based on the demands.

* It is fast, efficient and reliable.
* Avoids data redundancy and inconsistency.
* Very user-friendly or Easy accessibility of data.
* Number of personnel required is considerably less.
* Provides more security and integrity to data.
* The people in need of blood can search for the donors by giving their blood group and city name.
* Customer satisfaction will be good.

Also there are some other topics included in this chapter. These are:-

* Functional and non-functional requirement of the system.
* System model:- Includes use case diagram.
* Object model:-Includes class diagram.
* Dynamic model:-includes sequence diagram, activity diagram and state diagram and so on.

## 3.3 Functional requirements

In our project we aim at developing a system which should improve on the current

One with a lot of functionalities: -

* **Advertisements of blood donation event**

This function allows the blood bank staff to publicize the blood donation events online. The public can view the venue and time of the blood donation programs to be held.

* **Donor Registration**

This allows healthy public (donor, worker, blood seeker) to register as volunteer donor. Donor/ Recipient Id, Name, Date of Birth, Sex, Blood Group, Address, Contact Number, Email Address, Diseases (if any), Card No.

* **Request management**

This allows the probable recipients to make online request to the donor. After the request has been filed donors are matched and the request is sent via SMS with necessary details. Requesters may be individual or hospital.

* **Blood Stock Management**

The blood bank staffs can manage the blood stock starting from the blood collection, to blood screening, processing, storage, transference and transfusion through this system. Each process or work-flow can be traced from the database. The system will also raise alert to the staff whenever the blood quantity is below its par level or when the blood in stock has expired.

* **Donor/Recipient Management**

The records of all donors/recipient and their history are kept in one centralized database and thus reducing duplicate data in the database. The record of donation is maintained by the system.

* **Blood Collection**

Blood is collected in different types of packs. They are double, triple, and quadruple packs.

* **Screening**

In the screening they identify whether the donor blood type is A, B, AB, O and the donors Rh(D) type is positive or negative. All donated blood is tested for infections.

* **Search Information**

Blood seekers or accepters make search for a blood at emergency case online.

* **Generate Reporting**

The system is able to generate pre-defined reports such as the list of donors, recipients, staffs, the blood quantity in the bank and charts.

The system is able to generate pre-defined reports such as the list of donors, recipients, staffs, the blood quantity in the bank and charts.

* **Blood result notifications**

After the process of blood donation, the donor will receive a card that only Contains their name and blood type(through email). The donor’s account and generated password will be sent via e-mail, following by their blood result of the previous donation sent in a separated e-mail. Hospitals can also receive e-mail responding to their requested blood whether it is available in our stock or not.

* **Lab-Result**

Donor test for his/her blood type normality. After donation process lab technicians are responsible to record donors result, including their blood type and health status.

* **Manage blood inventory**

The system uses a First-In-First-Out stock management, where the blood stock that

is checked-in to the system first will be the first one given to the hospital when

Requested. When the blood stock is expired, the administrator is responsible for Removing the stock from the inventory and updating the system.



Figure 1. Data flow diagram

## 

## 

## 2 Data flow diagram

## 3.4 Non-Functional Requirements

The system must be developed to suit the particular needs of a user-friendly environment. This means that the system must accommodate a clearly understandable user interface as well as clear online help documentation at any stage of the user interaction with the system. A fast response time in obtaining and providing information to the system may also prove to be a significant advantage. In addition to these requirements, the system should also embrace the following requirements: -

* **User interface**

Users can easily input and retrieve their profile and history. The system should provide different graphical user interfaces which enable the user to insert and retrieve data into and from the database.

* **Login**

The system provides security features through username-password matching where only authorized user can access the system with different authorization level.

* **Authorization and authentication**

The system allows only the authorized person to use the system.

* **Security**

By the official user side the system will provide a user name and password that will manage their own page according to their level of access.

Each user is required to log in. The system should log staff that has been assigned user names and passwords. The system should be designed to make it impossible for anybody to logon without a valid username and password. Data encryption should be employed to keep the user login name and password secret.

The system uses SSL (secured socket layer) in all transactions that include any confidential customer information. It must automatically logout all customers after a period of inactivity.

* **Reliability**

The information provided by the system is as reliable as it is presented on theweb page interface, and this is maintained by the persistent database.

As the system provide the right took for problem solving it is made in such a way that the system is reliable in its operation and for securing the sensitive details.

The system would be used by staff worker at the blood bank.The reliability of the proposed system will be better due to proper storage of information when users access the application.

* **Availability**

As long as there is an internet connection the system will be available 7days a week and 24 hours a day. The system should be available at all the times, meaning the user can access it using application Performance. In terms of performance, the existing/manual system is not as satisfactory because it is slow/time consuming, man power consuming and does not support online information system about the awareness of blood donation, when to donate and how to donate. For this they use human power and some group, this take more time. The system is interactive and the delays involved are less.

* **Error handling**

The system should be able to give response (error message) when the user enter incorrect input. This recommends the user to enter correct input.

The system is expected to handle errors encountered during runtime. Errors could rise from users and from the system. Errors that occurred from the wrong doing of users will be handled by appropriate exception handling mechanisms. Generally, if the system identifies an error occurs the system will identify the error and notify the user so that he/she can take the appropriate corrections.

## 3.5 System model

3.5.1 Scenarios  
**Scenario: 1**

**Registration:**

**Participating actors:** Donor, Blood Seeker, Admin, and Doctor

**Entry Condition:**

* The blood bank Management System has to be opened on a compatible web browser.
* The system admin has to login into the system.

**Flow of events:**

**Normal flow**

* The Donor/ Blood Seeker/ Admin/ Doctor click the “New User Registration” button.
* The Donor/ Blood Seeker/ Admin/ Doctor select user type from the dropdown list.
* The system displays a new page containing a registration form according to the list the Donor/ Blood Seeker/ Admin/ Doctor selected.
* He /She fill the registration form displayed.
* The Donor/ Blood Seeker/ Admin/ Doctor click “Register” button.

**Alternate Condition:**

* If he/she enter invalid information, the system will display an error message to correct his/her inputs. Then he/she is prompted to enter valid information again.

**Exit Condition:**

* The system registers the new user into the database.
* The system will display an acknowledgement message of the registration to him or her.

**Scenario 2**

**Account Management:**  
**Participant actor**: Admin

**Goal**: to display the available blood to the home page of the system and to give response for seekers of the blood.

**Precondition:** 1.The user should be logged in into the system

2. The user clicks the post button or link.

**Flow of Event:**

* System administrator initiate to login
* System displays login page.
* System administrator enters username and password System checks the validity and then authentication and authorization of Username and password.
* System displays admin page
* System administrator select create user account page. Or delete account
* if create account
* System display create account page.
* System administrator enter user information
* System creates user account
* The system displays successful message

**Alternative flow:** if he/she enters wrong data, the system displays a message to enter correct data.

**Post Condition**: Logout.

**Scenario: 3**

**Requests management:**

**Participating actors:** Blood Seeker, hospital

**Entry Condition:**

* The blood bank Management System has to be opened on a compatible web browser.
* He/she has to login into the system.

**Flow of events:**

**Normal flow**

* She/he clicks the “Blood Requests” button.
* The system will display a page containing all blood requests.
* The user selects a specific user request, and if the requested service is available (not been taken by other personnel), he/she accepts the request for that service.
* If the requested blood is not available, the admin display the request on site.

**Alternate Condition**

* If there are more than one individuals asking for the same service, the system will give them a queue, and their request will be responded accordingly.

**Exit Condition:**

* The person who sent the request will get a notification about his/her request.

**Scenario: 4**

**Blood Search**

**Participating actors:** Admin,Blood Seekers, doctor

**Entry Condition:**

* The blood bank Management System has to be opened on a compatible web browser.
* Admin, Blood seekers, doctor has to login into the system.

**Flow of events:**

**Normal flow**

* User opens system page.
* He/she gets the search box.
* He/she can search blood or blood bank by its type, name or service.
* He/she can search service by keyword or name.
* User clicks search button.
* System display search result

**Alternate Condition**

* If the entered identification number of the blood is invalid or not found in the database, the system will display an error message. Then the Admin, Blood Seekers, Doctor will search again.

**Exit Condition:**

* The system displays search result and the user exits from that page.

**Scenario: 5**

**View user details:**

**Participating instance actors**:Admin, doctor

**Flow of events:**

* Admin**/**doctor enters user name and password
* Presses login button
* View all details registered in system
* System displays the details of services.
* Both can now view the services.
* Log out

**Alternate Condition**

* If the entered user name and password is invalid or not found in the database, the system will display an error message. Then Admin, Doctor will enter again.
* If he/she fill the form correctly then the system will  
  generate the successful message.

**Exit Condition:**  The system saves the entered data into the database.

**Scenario: 6  
approve or reject blood request:**  
**Participant actor**: Admin  
**Goal**: to display the available blood to the home page of the system and to give response for seekers of the blood.

**Precondition:**

* The system must be open.
* Network connection must be existing.
* The admin must be login to his/her home page.
* The donor must add blood information.

**Flow of Event:** 1. The administrator clicks on Approve/Reject button  
 2. The system displays list of blood details.  
 3. View the blood type list that where Status is pending.  
 4. Admin verifies the properties and then he can approve/Reject   
 5. The system displays success message.  
 6. End use case.  
**Alternative flow:** If there is no blood request properties, the user will back to homepage  
**Post Condition**: approve or reject success message on home page and if it is  
Accepted it redirect to news page.

**Scenario: 7  
Advertisement:**  
**Participant actor**: Admin, workers  
**Goal**: to display the available blood to the home page of the system and to give response for seekers of the blood.

**Precondition:** 1.The user should be logged in into the system

2. The user clicks the post button or link.

**Flow of Event:**

* In the user profile there is a button labeled “post” he clicks it to add or edit his advertisement.
* The system opens a new page that contains the candidate’s promises with data in it if any in edit mode.
* The candidate adds or edits his advertisement using the free editing template.
* The user clicks “Save and Return” button to save the changes and return to his/her profile.
* The system gives response edit or saves successfully.

**Alternative flow:** If you finish adding information you can made

**Post Condition**: Logout.

**Scenario: 8**

**Report Generation:**  
**Participant actor**: System administrator (admin), Blood seeker  
**Goal**: to display the available blood to the home page of the system and to give response for seekers of the blood.

**Precondition:** 1.The system must be open.  
 2. Network connection must be existing.  
 3. The admin must be login to his/her home page.  
 4. **To Edit Blood Bank Details information.**

**Flow of Event:.**

* **Enter username and password**
* **Click login,**
* **The system check if the value is valid or not from the database**
* **If valid the system display “Blood Bank Details menu” if not the system display “re enter user name or password”**
* **View any information**

**Post Condition**: Logout.

**Scenario: 9**

**Blood Bank Details:**

**Participating instance actor**: Administrator of the system.

**Entry condition:**

* **To View Blood Bank Details information**

**Flow of events:**

* **Enter username and password**
* **Click login,**
* **the system check if the value is valid or not from the database**
* **If valid the system display “Blood Bank Details menu” if not the system display “re enter user name or password”.**
* **Add new Information for Awareness**
* **Upload**
* **Blood stock**
* **blood inventory**
* **Distribute**
* **Locate the donation area, or camp**
* **Publicize blood donation event**

**Exit condition:** **Logout.**

**Scenario: 10**

**Blood Collection:**

**Participating instance actors:** workers

**Entry condition:**

* **To collect the Blood.**

**Flow of events:**

* **Click on Blood Collection**
* **Login**
* **Check The Authentication**
* **If Valid**
* **The system Display “Blood Collection Menu”**
* **Select and Fill The Differed Category forms**
* **If Rejected “Donation is Failed”**
* **If accepted**
* **Donate the Blood**
* **Send the Result to the Stock management**
* **Save**

**Exit Condition: Logout.**

**Scenario: 11  
Screening:**  
**Participant actor**: workers  
**Goal**: to display the available blood to the home page of the system and to give response for seekers of the blood.

**Precondition:** 1. **Take sample test**

**2. For testing person’s blood in order to identify those with particular characteristics**

**Flow of Event:**

* **Enter user name and password**
* **Check authentication**
* **If “not valid”**
* **Display “Re enter again”**
* **If “Valid”**
* **Search()**
* **If Result is Donor**
* **Display “Blood Donor Enrollment Form”**
* **Fill the form**
* **Blood Collection Form**
* **If Result is Blood Seeker**
* **Display “Blood Seeker Form”**
* **Fill the form**
* **Distribution Room**

**Scenario: 12  
Blood Donation:**  
**Participant actor**: **Donor**  
**Entry condition:**

* **Reservation of registered Donor to donate blood voluntarily.**

**Flow of events:**

* **Click on Blood Donation**
* **Enter Full name and UserID**
* **If not Valid “Re enter again your UserID or Name”**
* **If “Valid”**
* **Display Appointment Form**
* **Fill appointment Form**
* **Submit**
* **If you haven’t User ID**
* **Click On Registration**
* **Fill Registration Form**
* **Get UserID**
* **Go to Blood Donation**

**Exit condition: Back**

**Scenario: 13**

**Report laboratory result:**

**Participating instance actor**: Laboratory technician

**Entry condition:**

* The application have to be installed in the computer
* Internet connection has to be available.
* The user must have user name and password which have to be recognized by the system.

**Flow of events:**

* 1. The Laboratory technician performs tests on tissue, blood and other body fluids.
  2. Laboratory technician logged into the system.
  3. Laboratory technician clicks on laboratory result button.
  4. The system displays ID number input field and report result button.
  5. Then the laboratory technician enters the patient’s ID number and clicks on report result button.
  6. The system displays the report result form.
  7. The laboratory technician fills the form and clicks on submit button.

**Alternate conditions:**

If the patient’s ID invalid, the system generates invalid id message.

**Exit condition:** The system saves the entered data into database.

### 3.5.2 Use Case Model

A use case model is one of the Unified modeling language that indicates interaction between users and a system. It captures the goal of the users and the responsibility the system to its users. It is the functionality of the system or the service provided by the new system.  
The main purpose of a use case model is to show what system functions are performed for which actor.

**Actors** are external entities that interact with the system. Admin is the main authority who can do addition, deletion, and modification or full account management if required.

|  |  |  |
| --- | --- | --- |
| **Actors** | **Description** | **Task** |
| Administrator | A person who is able to observe and Controls the whole system | Login, maintain donor details, update and change the database, observe and remove donor, add information to the system and logout. |
| Workers | A person who has great role in blood collection,  screening …. | He/she use the system from registration to medication. |
| Donor | A person who is donates blood voluntarily. | He/she login, update, delete, logout. |
| Blood Seeker | Anyone who search, request, for view the system :e, people or hospital. | He/she who search for blood donor, find donors at emergency zone, request or report to admin panel. |
| Doctor | A person who is qualified to treat people who are ill (patients). | He/she allowed to search through categories, name and location |
| Lab-Technician | A person who performs tests on tissue, blood and other body fluids | He/she performs tests on tissue, blood, login, fill the form, report the result. |

Table 3 Actor identification and description

### 1.Use case diagram

C:\Documents and Settings\Administrator\Desktop\Image2.EMF

### 3.5.1.2 Use case Description

**Use case description for create user account**

|  |  |  |
| --- | --- | --- |
| Use case name | Account Management | |
| Actor | Admin | |
| Description | This activity is performed when the administrator wants to create a new user. | |
| Basic course of action | Actor action | System response |
| 1: System administrator initiate to login  3:System administrator enter username and password  6: System administrator select create user account page. Or delete account  If create account  8: System administrator enter user information | 2: System displays login page.  4: System checks the validity and then authentication and authorization of username and password.  5: System displays admin page  7: System display create account page.  9: System creates user account |
| Alternative course of action | Step 4: If the username and password is not validated and verified, system displays error message and go to step2  Step8: if the user information is not validated and verified, system display error message and go to step8 | |

**Use case description for Registration**

|  |  |
| --- | --- |
| **Use case name:** | **Registration** |
| **Participatory actor:** | **Donor, Admin, Blood Seeker** |
| **Entry condition:** | **for registration to get access from the blood bank** |
| **Event flow:** | **Click on the Registration**  **Select from Donor Registration and Recipient Registration**  **the system display “registration form”**  **Enter Donor information or recipient information**  **Select submit, the system checks if the value you enter is correct or not from the database if correct the system display “Successfully registered” if not the system display “re enter blank space”.**  **System generates UserID.**  **You have to Print UserID.** |
| **Exit condition:** | **Logout.** |

**Use case description for Blood Bank Information Details**

|  |  |
| --- | --- |
| **Use case name:** | **Blood Bank Details** |
| **Participatory actor:** | **Admin** |
| **Entry condition:** | **To Edit Blood Bank Details information** |
| **Event flow:** | **Enter username and password**  **Click login,**  **the system checks if the value is valid or not from the database**  **If valid the system display “Blood Bank Details menu” if not the system display “re enter user name or password”.**  **Add new Information for Awareness**  **Upload**  **Advertise**  **Publicize blood donation event** |
| **Exit condition:** | **Logout** |

**Use case description for Stock Management Details**

|  |  |
| --- | --- |
| **Use case name:** | **Stock Management Details** |
| **Participatory actor:** | **Admin** |
| **Entry condition:** | **Initiate the Details of the Blood Stock** |
| **Event flow:** | **Initiate Stock Management Details**  **Enter username and password**  **Click on Login ()**  **If “not valid”**  **Display “Re enter again”**  **If “Valid”**  **Display Details of the Blood Stock**  **Check Expired Blood and Amount of Blood**  **If There if there is Expired Blood and**  **Less Amount of Blood per level**  **Generate Alert Signal**  **Remove Expired Blood** |
| **Exit condition:** | **Logout.** |

**Use case description for Advertise information**

|  |  |  |
| --- | --- | --- |
| Use case number | UC-02 | |
| Name | Advertise information | |
| Actor | Admin | |
| Description | This explains how the candidate can Add or edit their information. | |
| Precondition:  Trigger | The user should be logged in into the system  The user clicks the post button or link. | |
| Basic course of action | User action | System response |
| 1. In the user profile there is a button labeled “post” he clicks it to add or edit his advertisement.  3. The candidate adds or edits his advertisement using the free editing template.  4. The user clicks “Save And Return” button to save the changes and return to his profile.  7. Use case ends. | 2. The system opens a new page that contains the candidate’s promises with data in it if any in edit mode.  5. The system gives response edit or saves successfully. |
| Alternative course of action | If you finish adding information you can made | |
| Post condition | Logout their account correctly | |

**Table 2.2: Use case Advertise info**

**Use case for Search information**

|  |  |  |
| --- | --- | --- |
| Use case number | UC-06 | |
| Name | | Search | |
| Priority | | High | |
| Actor | | Blood seeker | |
| Description | | To access information which distributed by the users and Donors from database. | |
| Precondition: | | Must be login to the system. | |
| Basic course of action | | User action | System response |
| 1. User of the system wants to search data from the system.  2. User of the system opens the site of the system.  3. Go to search button text area write information search from database.  4. Click on search button.  7. The user sees information they search.  8. Use case ends. | 5. The system responds the requested action.  6. The system display searched data or information to the wanted person. |
| Alternative course of action | | 3.1 If the searching word not available the system generates alternative retry message to the web users, the user go to step 3 basic course of action and tray again. | |
| Post condition | | View the searched data correctly | |

**Use case for View User detail**

|  |  |  |
| --- | --- | --- |
| Use case number | UC-07 | |
| Name | View user details | |
| Actor | Adimn, Doctor. | |
| Description | This describes the process of how the Admin, Donor, Hospital, and Administrator view the blood by using the system. | |
| Precondition: | Time must be run over the limit. | |
| Basic course of action | User action | System response |
| The user must be open website.  The user can ask information they want to know.  After searching necessary information click on view button.  6. After getting necessary information they can view.  8. Use case end. | 4. The system respond requested action to the administrator.  5. The system display searched data or information.  7. System display successfully message. |
| Alternative course of action | If all users can’t see the blood bank information, try again and login to the system. | |
| Post condition | The user knows the wanted information. | |

Table2.7: Use case View result

**Use case description for Blood Collection**

|  |  |
| --- | --- |
| **Use case name:** | **Blood Collection** |
| **Participatory actor:** | **Worker** |
| **Entry condition:** | **To collect and screen blood** |
| **Event flow:** | **Click on Blood Collection**  **Login**  **Check the Authentication**  **If Valid**  **The system Display “Blood Collection Menu”**  **Select and Fill the Differed Category forms**  **If Rejected “Donation is Failed”**  **If accepted**  **Donate the Blood**  **Send the Result to the Stock management**  **Save** |
| **Exit condition:** | **Logout.** |

**Use case description for Logout**

|  |  |  |
| --- | --- | --- |
| Use case number | UC-09 | |
| Name | **Logout** | |
| Priority | High | |
| Actor | Admin, Donor, Hospital, | |
| Description | Admin, Donor, Hospital, and Administrator of the system must logout after you finish work properly. | |
| Precondition: | UC-1 | |
| Basic course of action | User action | System response |
| Admin, Donor, Hospital, and Administrator went to logout from the site.  Admin, Donor, Hospital, and Administrator click on logout button.  5. The use case exit. | 3. The system responds the requested action.  4. The system forms that page to login page. |
| Alternative course of action | If not, successfully logout please try again it maybe connection problem go to basic course of action step two. | |
| Post condition | The system logout. | |

Table 2.9: Use case logout

**Use case description for** Screening

|  |  |
| --- | --- |
| **Use case name:** | **Screening** |
| **Participatory actor:** | **Worker** |
| **Precondition** | **Take sample test** |
| **Entry condition:** | **For Testing person’s blood in order to identify those with particular characteristics** |
| **Event flow::** | **Enter user name and password**  **Check authentication**  **If “not valid”**  **Display “Re enter again”**  **If “Valid”**  **Search ()**  **If Result is Donor**  **Display “Blood Donor Enrollment Form”**  **Fill the form**  **Blood Collection Form**  **If Result is Blood Seeker**  **Display “Blood Seeker Form”**  **Fill the form**  **Distribution Room** |

**Use case description for** Blood Donation

|  |  |
| --- | --- |
| **Use case name:** | **Blood Donation** |
| **Participatory actor:** | **Donor** |
| **Entry condition:** | **Reservation of registered Donor to donate blood voluntarily** |
| **Event flow:** | **Click on Blood Donation**  **Enter Full name and UserID**  **If not Valid “Re enter again your UserID or Name”**  **If “Valid”**  **Display Appointment Form**  **Fill appointment Form**  **Submit**  **If you haven’t User ID**  **Click On Registration**  **Fill Registration Form**  **Get UserID**  **Go to Blood Donation** |
| **Exit condition:** | **Back** |

**\**

**Use case description for Refer Friend**

|  |  |
| --- | --- |
| **Use case name:** | **Refer Friend** |
| **Participatory actor:** | **Donor** |
| **Entry condition:** | **Advertising your Friends for Donation** |
| **Event flow:** | **Click on Refer Friend**  **System Displays Refer Friend Form**  **Fill the Refer Friend Form**  **If “Valid”**  **Display the Acknowledgement**  **If not Valid**  **Re Enter Again**  **Submit** |
| **Exit condition:** | **Back** |

**Use case description for Approve**

|  |  |
| --- | --- |
| **Use case name:** | **Approve** |
| **Participatory actor:** | **Admin** |
| **Entry condition:** | **For Approving those who donate the blood and Disapprove those who fail their appointment by their session date.** |
| **Event flow:** | **Initiate the Approve**  **Enter Username and password**  **Login ()**  **Check validity**  **If Not valid “Re Enter Again”**  **If Valid**  **Check message from workers ”Donate /Fail to Donate”**  **If Valid message “Approve”**  **If Not Valid message” Disapprove”** |
| **Exit condition:** | **Back** |

**Use case description for** Distribution

|  |  |
| --- | --- |
| **Use case name:** | **Distribution** |
| **Participatory actor:** | **Admin** |
| **Precondition** | **Blood Seeker must exist** |
| **Entry condition:** | **For Blood distribution** |
| **Event flow:** | **Enter user name and password**  **Check authentication**  **If “not valid”**  **Display “Re enter again”**  **If “Valid”**  **Search () from Stock that fit with the blood Seeker**  **If exist**  **Distribute** |

**Use case description for laboratory test**

|  |  |
| --- | --- |
| **Use case name:** | **laboratory result** |
| **Participatory actor:** | **Lab technician** |
| **Entry condition:** | The application have to be installed in the computer  Internet connection has to be available.  The user must have user name and password which have to be recognized by the system. |
| **Event flow:** | The Laboratory technician performs tests on tissue, blood and other body fluids.  Laboratory technician logged into the system.  Laboratory technician clicks on laboratory result button.  The system displays ID number input field and report result button.  Then the laboratory technician enters the patient’s ID number and clicks on report result button.  The system displays the report result form.  The laboratory technician fills the form and clicks on submit button |
| **Exit condition:** | The system saves the entered data into database. |

Use case description for blood result notification

|  |  |
| --- | --- |
| Use case name: | Blood result notification |
| Participatory actor: | Admin |
| Entry condition: | Sending email that contains blood type and health status for donors |
| Event flow: | Log in to list of donors blood result  Select donor name and result  Open email of donor  Send the result via email |
| Exit condition: | Logout |

## 3.6 Object Model

In this section the team discuss all about the object modeling of the system which include identifying class which the system constitutes and drawing their relationship using data dictionary and class diagram.

Data Dictionary

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** | **Class** | **Attributes** | **Operations** | **Description** |
| 1 | **Admin, Doctor** | EID,  Full Name, username, password address, Age,  Sex, phone,  Email,  qualification, | Login()  Logout()  Generate  Check donor()  report()  Change account info()  Register user() | Gives a brief description about system administrator, and shows its main functions, Stores record of Patient found in the blood bank respectively. |
| 2 | **Donor** | Full Name, Date of birth, Age, , sex, Occupation, Reg.No,  City,  Zone,  Woreda, Mobile phone, email, | Login()  Logout()  Register for donation()  Donate() | Register for donation,  View blood bank info detail() |
| 3 | **Blood Seeker** | Name,  Card NO, Ward, Recipient blood type, Amount of blood requested,  Name of physician requested,  Signature,  Date, | Search for()  Request for()  Blood seeker register to get blood() | He/she who search for blood donor, find donors at emergency zone, request or report to admin panel. |
| 4 | **Account** |  |  |  |
| 6 | **Worker** | username  password | Worker screen the blood()  Register-donor()  send notification()  Worker test the blood()  Worker could Discard() | He/she use the system from registration to medication. |
| 7 | **Blood collection** (**event)** | Blood type  Blood test result  Blood discard result | -- | ---------- |
| 8 | **Stock management**(**event)** | Blood amount in uint,Expired date, Collected date, | Admin remove expired blood()  Admin add approved blood()  Admin distribute blood() |  |
| **9** | **Rifer friend (event )** | Friend name,  Friend email,  Friend mobile number, | Donor advertise to friend()  Admin advertise toregistered donor() | ------- |
| **10** | **Screening(event )** | Pack. No  Weight,  Volume,  Screened by, ABO, RH, type of donation, remark | Worker screen the blood() | -------- |
| 11 | **Distribution (event )** | Distributed free yes/no,  Distributed replace yes/no,  Request init,  Blood component,  Distributed by | Admin distribute the blood() | --------- |
| 12 | **Blood request** | Requested by | Request for() | users request for blood via the  of the system |
| 13 | **Blood** | Type,  code,  description, | save() | Allow the admin to add new details. |
| 14 | **User Registration** | wereda,Full Name,houseNumber,id, marital Status, nationality, occupation, phone Number,  Religion, status. current Address, birthdate, birthplace, | register() | Will allow to register user to BBMS database |

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| --- | --- | --- | --- |
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|  |  |  |  |

## 

## 3.6 .1 Class Diagram

The Class diagram captures the logical structure of the system; the classes and things that make up the model. It is a static model, describing what exists and what attributes and behavior it has, rather than how something is done. Class diagrams are most useful to illustrate relationships between classes and interfaces.

It shows the classes of the system and their interaction which are typically used to

* Explore domain concept
* Analyze requirement in the form of conceptual analyses model A class diagram is typically modeled rectangles with three-section:
* The top one indicates the name of the class
* The middle one lists the attributes of the class and
* The third one lists the methods

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## 3.7 Dynamic Model

### 3.7.1 Sequence diagram

A sequence diagram in a Unified Modeling Language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what order. A sequence diagram shows object interactions arranged in time sequence. It shows the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario.

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**Figure 2.1 Sequence diagram for Create Account**



**Figure 2.2 Sequence diagram for Registration**

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**Figure 2.3 Sequence diagram for Blood Collection**

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**Figure 2.4 Sequence diagram for Stock Management Details**

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**Figure 2.5 Sequence diagram for advertisement**

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**Figure 2.6 Sequence diagram for Blood Bank Information Details**

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**Figure 2.7 Sequence diagram for blood Search**

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**Figure 2.8 Sequence diagram for Blood Donation**

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**Figure 2.9 Sequence diagram for screening**

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**Figure 2.10 Sequence diagram for Refer Friend**

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**Figure 2.11 Sequence diagram for Approve**

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Figure 2.12Sequence diagram for Distribution

### 3.7.2 Activity diagram

The following figure depicts the high level activity diagram of the system. The figure depicts the high level interaction of the actors with the system that specifies the work flow the system.  
An activity diagram is a variation of a state machine in which the states  
represent the performance of actions or sub activities and the transitions are  
triggered by the completion of the actions or sub activities. It represents a state  
machine of a procedure itself.



2.13. Activity Diagram for Login



**2.14.** Activity Diagram for Registration



Figure 2.15 Activity Diagram Blood Collection



Figure 2.16Activity Diagram for Blood search



Figure 2.17 Activity Diagram for advertisement



Figure 2.18 Activity Diagram for Blood Bank Information Details



Figure 2.19 Activity diagram for Blood Donation



Figure 2.20 Activity diagram for Stock management



Figure 2.21 Activity diagram for Refer Friend



Figure 2.22 Activity diagram for Blood result notification

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### Figure 2.23 Activity diagram for Lab result

### 3.7.3 State diagram

State chart modeling is used to show the sequence of states that an object goes through, the events that cause the transition from one state to the other and the actions that result from a state change. The following figure shows the state of the objects of the corresponding use cases.

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Figure 2.24 State chart diagrams for login

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Figure 2.25 State chart diagrams for registration

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Figure 2.26 State chart diagrams for Blood Search

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Figure 2.27 State chart diagrams Blood collection

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Figure 2.28 State chart diagram for Blood Bank Information Details

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Figure 2.29 State chart diagrams for Advertisement

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Figure 2.30 State chart diagram for Refer Friend

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Figure 2.31 State chart diagram for Screening

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Figure 2.32 State chart diagram for Stock management

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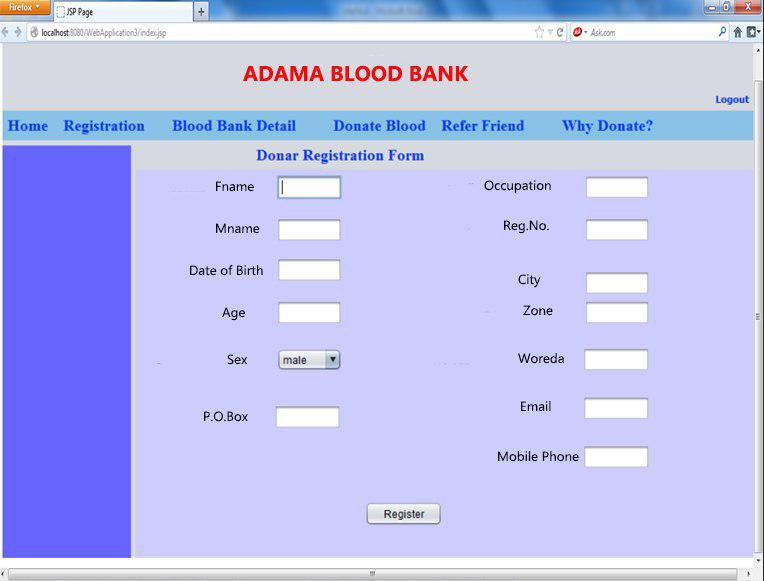
Figure 2.33 State chart diagrams for Approvance

## C:\Documents and Settings\Administrator\Desktop\Image2.EMF

## Figure 2.34 State chart diagrams for Blood result notification

## C:\Documents and Settings\Administrator\Desktop\Image2.EMF

## Figure 2.35 State chart diagrams for Lab result



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