

On Line Blood Bank Management System: A Web Application

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Abstract

The objective of this paper is that the management of the blood and detail of the donors. Online blood bank system” is a web application that allows to access the whole information about blood bank management system, readily scalable and adaptable to meet the complex need of blood bank who is the key facilitator for the health care sector it also supports all the functionalities of blood bank. It is used for maintaining information about the Donor. The project includes main modules admin, donor, blood request, blood bank and helpdesk. It maintains all the information of donor and all the record of blood requests and the available blood. The Blood Bank system helps the people who are in need of a blood by giving them all details of blood group availability or regarding the donors.

Keywords: Blood Bank Management, Web Application, Donor, Acceptor

DOI: 10.7176/JIEA/9-6-01

Publication date: October 31st 2019

1. Introduction

The Blood Bank Management system is great project. This project is designed for successful completion of project on blood bank management system. The basic building aim is to provide blood donation service to the city recently. Blood Bank Management System (BBMS) is a browser-based system that is designed to store, process, retrieve and analyze information concerned with the administrative and inventory management within a blood bank [1]. Bank blood donation system is planned to collect blood from many donors in short from various sources and distribute that blood to needy people who require blood. To do all this we require high quality software to manage those jobs. The government spending lot of money to develop high quality “Blood Bank management system project” [2]. Sometimes Doctors and Blood bank project have to face the difficulty in finding the blood group Donors at right time. At any point of time the people who are in need can reach the donors through our search facility [3]. By mobilizing people and organization who desire to make a difference in the lives of people in need. On the basis of humanity, everyone is welcome to register as a blood donor. As we know this project is quite difficult, less efficient and accurate in comparison to the computerized system.

The main objectives of this project are to automate the complete operations of the blood bank. They need maintain hundreds of thousands of records. Also searching should be very faster so they can find required details instantly.

To develop a web-based portal to facilitate the co-ordination between supply and demand of blood. This system makes conveniently available good quality, safe blood and other blood components, which can be provided in a sound, ethical and acceptable manner, consistent with the long-term well-being of the community. It actively encourage voluntary blood donation, motivate and maintain a well-indexed record of blood donors and educate the community on the benefits of blood donation. This will also serve as the site for interaction of best practices in reducing unnecessary utilization of blood and help the state work more efficiently towards self-sufficiency in blood.

The system will provide the user the option to look at the details of the existing Donor List, Blood Group and to add a new Donor. It also allows the user to modify the record. The administrator can alter all the system data. Lot of paper work, slow data processing, not user-friendly environment, difficult to keep old records and can't update daily, due to these problems it is necessary to develop a system that address all these issues.

2. Literature

Bank blood donation system is planned to collect blood from many donors in short from various sources and distribute that blood to needy people who require blood. To do all this we require quality software to manage those jobs [4]. The system will provide the user the option to look at the details of the existing Donor List, Blood Group and to add a new Donor. It also allows the user to modify the record. The administrator can alter all the system data [5].

Online Blood Bank system is now a day's most widely used and popular because this is less time consuming and request for the blood from any of the area. This can also save the time [6]. Online Blood Bank system provides the accuracy factor because all the data is logged into the database safely and the user is provided with the receipt number for his data. The data is then sending safely to the administration and they may interact with the client as per his requirement [7]. This web application is also very helpful because a helpdesk

system is available for the user where the user get fully help either they want any information, or they want to submit any complain or feedback [8]. The system will provide the user the option to look at the details of the existing Donor List, Blood Group and to add a new Donor. It also allows the admin to modify the record. The administrator can alter all the system data [9]. It also allow the user to see the blood request and donate blood according to the blood request

2.1 Existing System

The existing system is the manual system and for that if the any request for the blood go in the request for blood page and check the blood request .Than he came to know that the blood request is available or not.

2.1.1 Ex System 1 (Manual Records Keeping)

In the existing system there is a manual record system where all the record/data for blood request or donor information other information are stored in database so Online system is the best because in this system are the records are stored safely in the database efficiently

2.1.2 Ex System 2 (Inaccurate Information System)

In the existing system as there is a manual system for record keeping so sometime the information is incorrect. While in an online event management system all the details are provided accurately about the blood request or available blood any information. So, this system is full of detailed information and easily understandable.

2.1.3 Ex System 3(Inefficient Feedback System)

In the existing system the customer gives the feedback on the registers that are sometime lost or sometime disposed into garbage. While in an online system there is a helpdesk system where the user can give there feedback, submit complain or get help about any information and all the record are stored accurately in the database [10].

2.1.4 Proposed System

The proposed system is a web based online application that provides the user with the facility of detailed information of Donor or Blood request. This system clears the factor of confusion from user mind about information. This system makes conveniently available good quality, safe blood and other blood components, which can be provided in a sound, ethical and acceptable manner, consistent with the long-term wellbeing of the community [11]. This application is built such a way that it should suits for all type of blood banks in future. So every effort is taken to implement this project in this blood bank, on successful implementation in this blood bank It actively encourage voluntary blood donation, motivate and maintain a well-indexed record of blood donors and educate the community on the benefits of blood donation [12]. The proposed system is efficient and better than existing system because of the following reason:

- This system provide a detailed information platform to the user
- The manual system is replaced with the online system
- All the data and the record are stored safely in the database in this system

2.2 Information Gathering

Home page is designed where the customer can get any type of the information about the Blood request and other services. Previous page is also available where the about blood request or donor information. And detail about the blood requests.

2.3 Interview

I visited a hospital and meet with the patient they told me that it is very difficult to manage the blood many patient dies due to lack of blood. Some emergency cases blood is need at the spot but they cannot manage. Then my aim is to provide blood to the patient and poor people they cannot arrange the blood easily.

2.4 Comparison Table

Table No. 1 Comparison table

| Existing System | Proposed System |
|---|---|
| Without having proper information it is very difficult to supply the blood to the required people | Speed and accuracy there is no redundancy of data |
| Information sharing is not possible among blood banks, hospitals about the required blood group in the case of emergency. | It will be easily handle . |
| Consumes large volume of paper work to store the records | All the records are stored in the database |
| There is no surely availability of blood request. | The proposed method maintenance of schedule erroneous and it is very easy to operate. |
| The system is not efficient | Include greater efficiency |
| Include chances of human errors | User friendliness and interactive |

2.5 Feasibility Study

Feasibility study is made to see if the project on completion will serve the purpose of the organization for the amount of the work, effort and the time that spend on it. Feasibility study lets the developer for see the future of the project and the usefulness. A feasibility study of the system proposal is according to its workability, which is the impact on the organization, ability to meet their user needs and effective use of resources. As the name implies, a feasibility study is used to determine the viability of an idea, such as ensuring a project is legally and technically feasible as well as economically justifiable. It tells us whether a project is worth the investment in some cases, a project may not be doable. Feasibility studies allow companies to determine and organize all the details to make a business work. A feasibility study helps identify logistical problems, and nearly all business-related problems and their solutions. Feasibility studies can also lead to the development of marketing strategies that convince investors or a bank that investing in the business is a wise choice.

3. Design

The front end is an interface between the user and the back end. The front and back ends may be distributed amongst one or more systems front end can refer to any hardware that optimizes or protects network traffic. Network traffic passes through the front-end hardware before entering the network.

In compilers, the front end translates a computer programming source code into an intermediate representation, and the back end works with the intermediate representation to produce code in a computer output language. The back end usually optimizes to produce code that runs faster. The front-end/back-end distinction can separate the parser section that deals with source code and the back end that generates code and optimizes.

These days, front-end development refers to the part of the web users interact with. In the past, web development consisted of people who worked with Photoshop and those who could code HTML and CSS. Now, developer's need a handle of programs like Photoshop and be able to code not only in HTML and CSS

Most of everything you see on any website is a mixture of HTML, CSS which are all controlled by the browser. For example, if you're using Google Chrome or Firefox, the browser is what translates all of the code in a manner for you to see and with which to interact, such as fonts, colors, drop-down menus, sliders, forms, etc. In order for all of this to work, though, there has to be something to support the front-end; this is where the backend comes into play.

3.2 Use case diagram

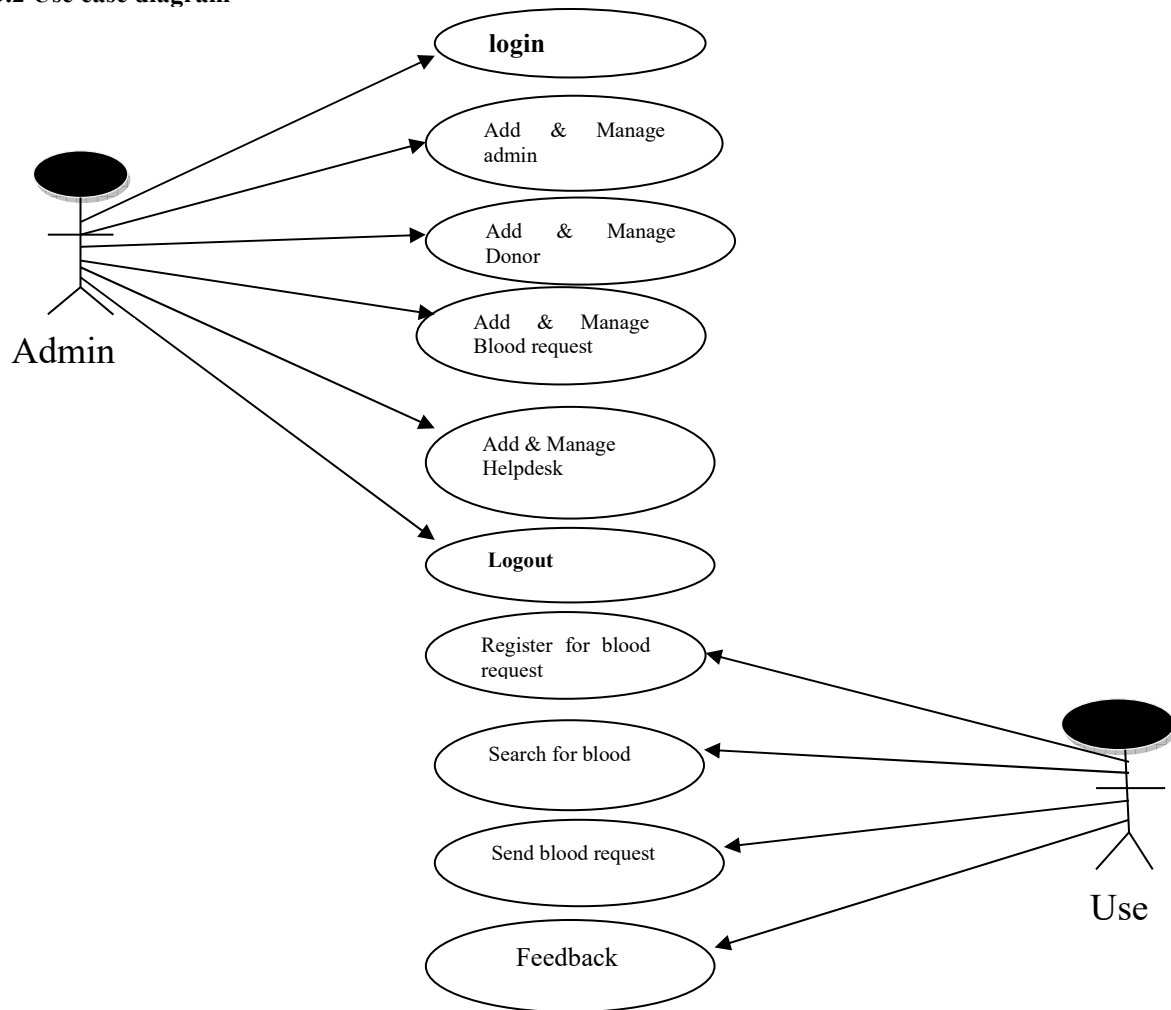


Figure 3.1 Use Case Diagram

3.3 Use case

Use case diagrams are valuable for visualizing the functional requirements of a system that will translate into design choices and development priorities. They also help identify any internal or external factors that may influence the system and should be taken into consideration. They provide a good high-level analysis from outside the system. Use case diagrams specify how the system interacts with actors without worrying about the details of how that functionality is implemented. While a use case itself might drill into a lot of detail (such as, flow of events and scenarios) about every possibility, a use-case diagram can help provide a higher-level view of the system, providing the simplified and graphical representation of what the system must actually do. Use cases define interactions between external actors and the system to attain particular goals. A use case diagram contains four main components

3.3.1 Actor

Actors are usually individuals involved with the system defined according to their roles. The actor can be a human or other external system.

3.3.2 Relationship

The relationships between and among the actors and the use cases.

3.3.3 Use in my project

In my project two actor were use one is admin and second is user admin related to the backend of the system add admin and the manage admin add admin add the name and the password and manage admin update the admin and delete the admin. The next module is donor in this add donor and manage donor add donor add the donors and manage donors update and delete the donors. The next module is blood request in this module add blood request and manage blood , add blood request means user enter the blood request form will appear on the screen user add blood request manage blood request delete and update the blood request

The next module is blood bank in this module available blood is given and manage blood bank update and

delete the blood bank

3.4 Sequence diagram

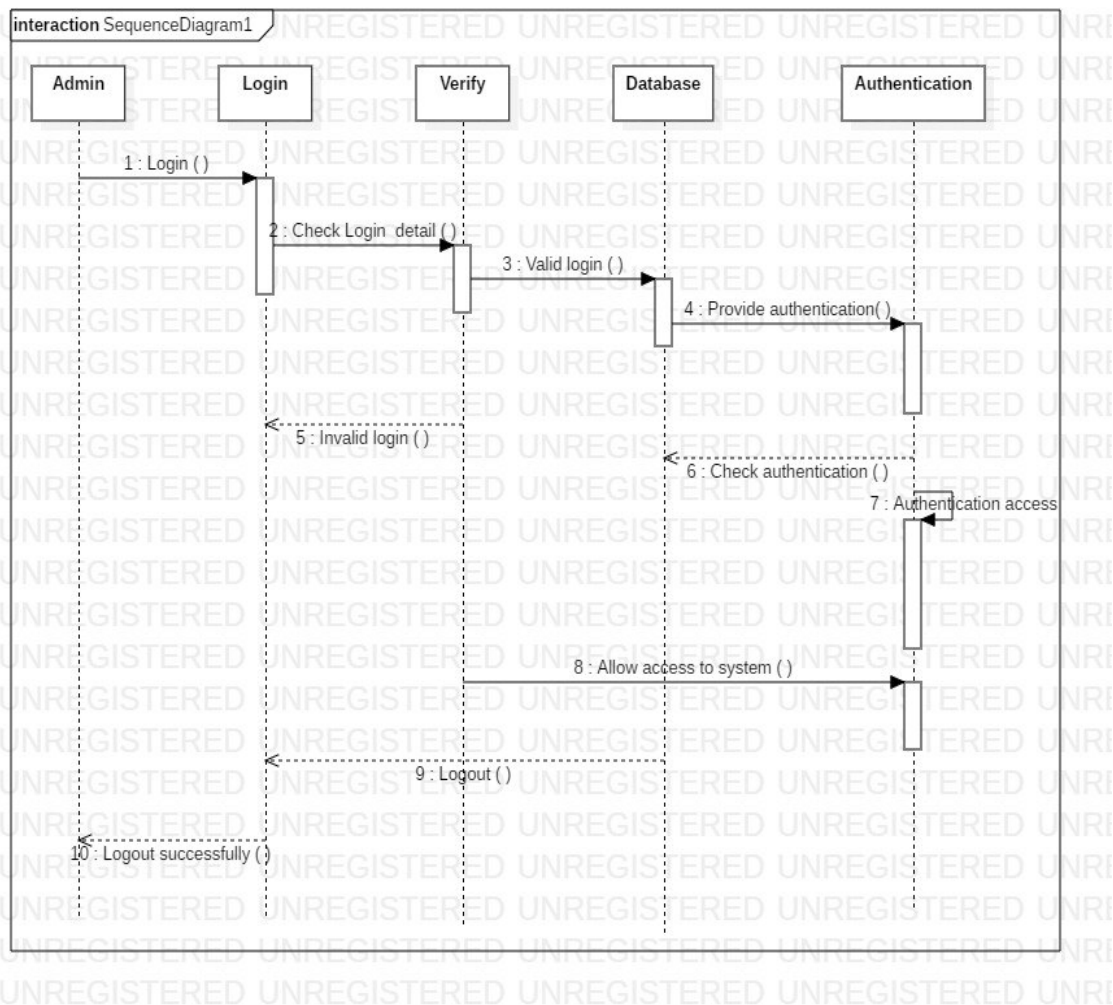


Figure 3.2 Sequence Diagram

3.4.1 Sequence diagram

Sequence diagrams describe interactions among classes in terms of an exchange of messages over time. They're also called event diagrams. A sequence diagram is a good way to visualize and validate various runtime scenarios. These can help to predict how a system will behave and to discover responsibilities a class may need to have in the process of modeling a new system.

3.4.2 Messages

Messages are arrows that represent communication between objects. Use half-arrowed lines to represent asynchronous messages. Asynchronous messages are sent from an object that will not wait for a response from the receiver before continuing its tasks.

3.4.3 Lifelines

Lifelines are vertical dashed lines that indicate the object's presence over time.

3.4.4 Reply or Return Message

A reply message is drawn with a dotted line and an open arrowhead pointing back to the original lifeline.

3.4.5 Self Message

A message an object sends to itself, usually shown as a U-shaped arrow pointing back to itself.

3.4.6 Use in my project:

Sequence diagrams describe interactions among classes in terms of an exchange of messages over time. They're also called event diagrams. A sequence diagram is a good way to visualize and validate various runtime scenarios. These can help to predict how a system will behave and to discover responsibilities a class may need to have in the process of modeling a new system.

Lifelines are vertical dashed lines that indicate the object's presence over time. The admin send the request to login, login verify the admin data is correct or wrong the data is accurate then goes to the database and data is

incorrect back to the admin check the database and check authentication if authentication is success goes forward if authentication is fail goes back.

3.4.5 Data schema

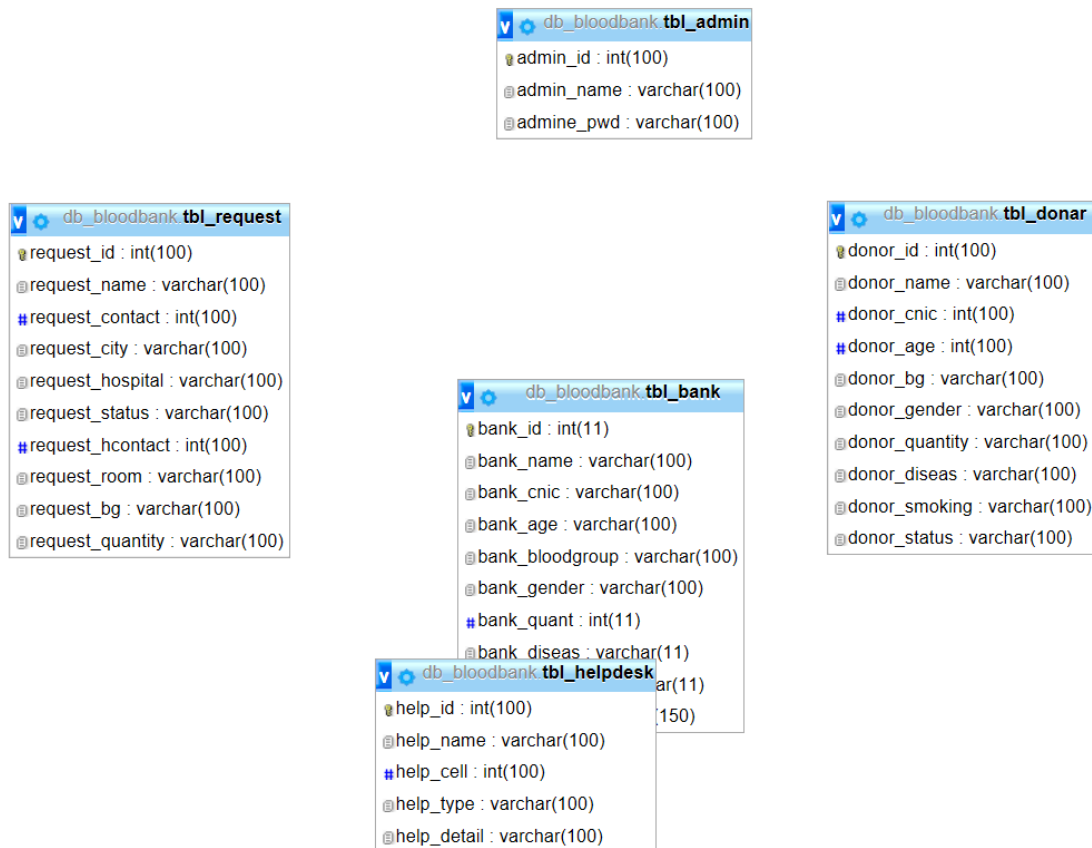


Figure 3.7 Data Scheme

3.5 ERD diagram:

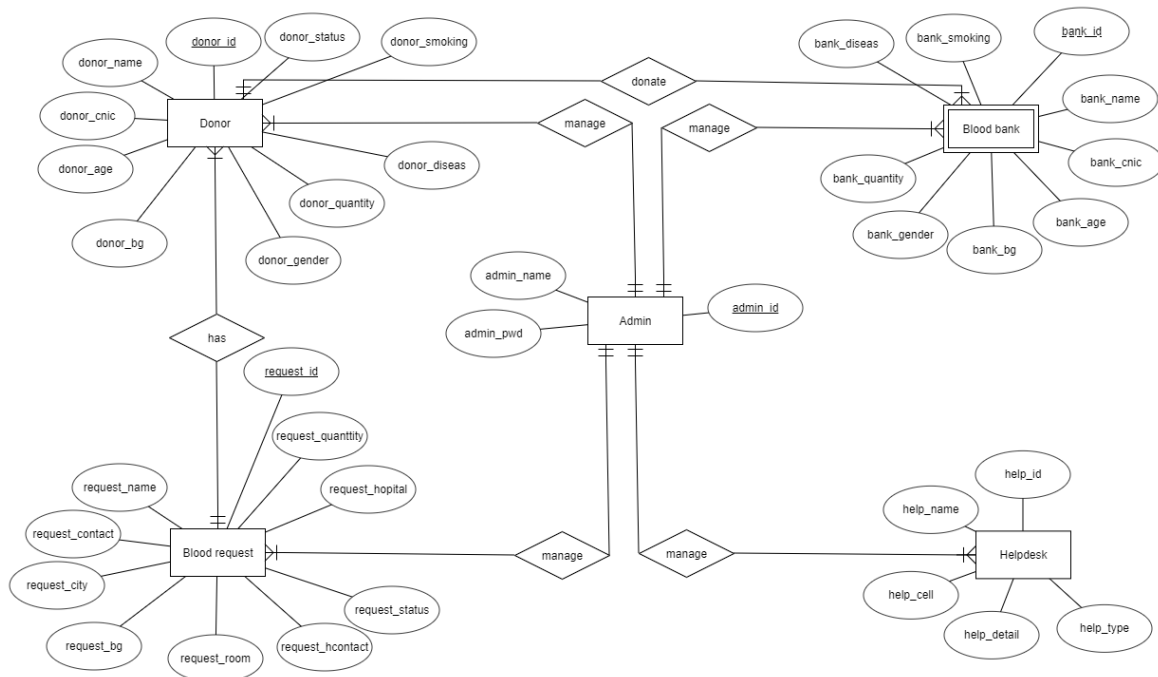


Figure 3.8 ERD Diagram

3.5.1 ERD diagram

An entity relationship diagram (ERD) shows the relationships of entity sets stored in a database. An entity in this context is an object, a component of data. An entity set is a collection of similar entities. These entities can have attributes that define its properties. By defining the entities, their attributes, and showing the relationships between them, an ER diagram illustrates the logical structure of databases. ER diagrams are used to sketch out the design of a database.

Development Plan

4.1 Waterfall model:

I select waterfall because it is easy to use and it is very useful for small project.

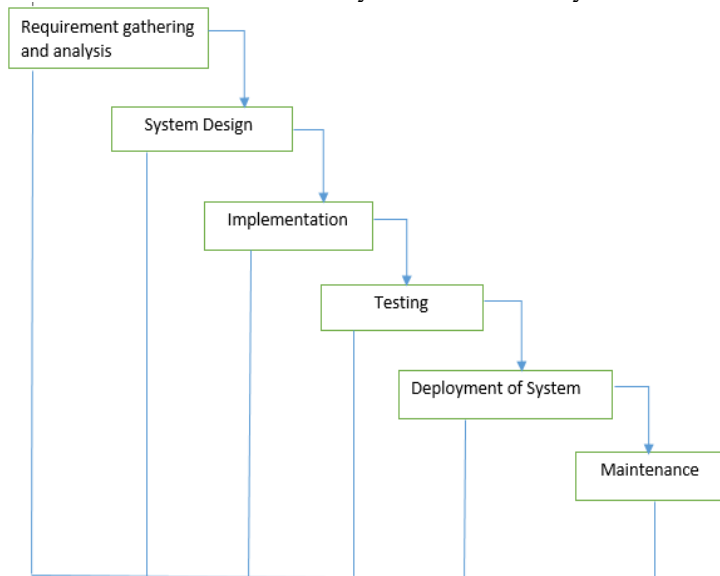


Figure 4.1 Waterfall Model

- **Requirement Gathering and analysis:** All possible requirements of the system to be developed are captured in this phase and documented in requirement specification document.
- **System Design:** The requirement specifications from first phase are studied in this phase and the system design is prepared. This system design helps in specifying hardware and system requirements and help in defining the overall system architecture.
- **Implementation:** With inputs from the system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality, which is referred to as Unit Testing.
- 4. **Integration and Testing:** All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.
- 5. **Deployment of system:** Once the functional and non-functional testing is done; the product is deployed in the customer environment or released into the market.
- 6. **Maintenance:** There are some issues which come up in the client environment. To fix those issues, patches are released. Also to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment.

4.2 Selection of language

I select web language html, php, bootstrap, css, JAVASCRIPT

4.3 Programme code:

```
<?php
if(isset($_POST["btn_submit"]))
{
    $uname = $_POST["name"];
    $pwd = $_POST["pwd"];
    $SQL = "insert into tbl_admin(admin_name,admin_pwd) values('".$uname."','".$pwd."')";
    mysqli_query($con,$SQL);
```

```

    }

?>
<head>
<link rel="stylesheet" href="css/admin.css">
</head>
<body>
<div class="panel panel-default">
<div style="height:530px; width:700px; margin:auto; margin-top:-10px; margin-bottom:10px; background-color:#f8f1e4; border:2px solid red; box-shadow:4px 1px 20px black;"></div>
<div class="container">
    <h2><b>Admin</b></h2>
    <form class="form-horizontal" name="registration" method="post" action="" >

        <!--NAME-->
        <div class="form-group">
            <div class="row">
                <label class="control-label col-md-3">User Name</label>
                <div class="col-md-7">
                    <input type="text" class="form-control" name="name"
placeholder="ENTER NAME" required="required" pattern="[a-zA-Z _]{1,15}" title="please enter only
character between 5 to 15 for donor name">
                </div>
            </div>
        </div>

        <!--password-->
        <div class="form-group">
            <div class="row">
                <label class="control-label col-md-3">Password</label>
                <div class="col-md-7">
                    <input type="text" class="form-control" name="pwd" placeholder="ENTER
PASSWORD" required="required" >
                </div>
            </div>
        </div>

        <button type="submit" value="Submit" name="btn_submit" class="btn btn-
primary" style="margin-left:150px;" width:150px;">SUBMIT</button>
        <button type="clear" value="clear" name="btn_clear" class="btn btn-primary"
width:150px;">CLEAR</button>
    </form>
</div>
</div>

</body>
</html>

```

5.1 Implementation

Software implementation is the stage process at which an executable software system is developed. Software design and implementation activities. – Implementation is the process of realizing the design as a program. For an implementation process to be successful, many tasks between different departments need to be accomplished in sequence. Companies strive to use proven methodologies and enlist professional help to guide them through the implementation of a system but the failure of many implementation processes often stems from the lack of accurate planning in the beginning stages of the project due to inadequate resources or unforeseen problems that arise. Implementation is the carrying out, execution, or practice of a plan, a method, or any design, idea, model, specification, standard or policy for doing something. As such, implementation is the action that must follow any preliminary thinking in order for something to actually happen.

5.1.1 Implementation location

My project is implemented in D G khan tramma center

- **Hardware Requirements**

| | | |
|-----------|---|--------------------------------|
| Processor | : | Intel Core Duo 2.0 GHz or more |
| RAM | : | 1GB or More |
| Harddisk | : | 40GB or more |
| Monitor | : | 15" CRT, or LCD monitor |
| Keyboard | : | Normal or Multimedia |
| Mouse | : | Compatible mouse |

- **Software Requirement**

- Windows xp,7,8 and 10

- **Web browser**

Google chrome, Mozilla Firefox. internet Explorer

5.2 Testing of the system

Testing is the process of executing then programs with the intention of finding out errors. During the process, the project is executed with set of test and the output of the website is evaluated to determine if the project is performing as expected. Testing makes a logical assumption that if all the parts of the module are correct then goal will be successfully achieved. Testing includes after the completion of the coding phase. The project was tested from the very beginning and also at each step by entering different type of data. In the testing phase some mistakes were found, which did not come to knowledge at the time of coding the project. Then changes were made in the project coding so that it may take all the relevant data and gives the required result. All the forms were tested one by one and made all the required changes.

6. 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 PHP, bootstrap, css, **JAVASCRIPT** 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 throughout the project. I also thank my parents and friends who have supported and motivated me to complete this project successfully.

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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