



Emphasized Design Thinking Approach based Blood Bank Management System.

¹Aravindkumar.P, ²Gunadeseakaran.D, ³Mohamedijas.I, ⁴Puviyarasu.P, *Prof.Vikneshkumar.D

^{1,2,3&4}UG Scholars, *Professor and Dean (CSE&IT)

^{1,2,3&4}Department of Information Technology,

^{1,2,3,4&*}SNS College of Technology, Coimbatore, Tamil Nadu, India.

Abstract: Blood Bank Management System (BBMS) is a browser-based system that is designed to store, process, retrieve and analyse information concerned with the administrative and inventory management within a blood bank. This project aims at maintaining all the information pertaining to blood donors, different blood groups available in each blood bank and help them manage in a better way.

Our aim is to provide transparency in this field, make the process of obtaining blood from a blood bank hassle free and corruption free and make the system of blood bank management effective. Our client is not interested in blood stocking instead we are stocking blood donors' information. The donors who are interested in donating blood has to register in the database. There is no storage of blood so no complications in the project. The software is fully integrated with CRM (customer relationship management) as well as CMS (content management system) solution. It is developed in a manner that is easily manageable, time saving and relieving one from manual works. The requirement of the blood has to be requested and we supply the information of the donor. The donors update their status whether they are available or not.

1.Introduction

Currently, This Blood Bank system is serving as a useful approach to maintain patient details and the donors in the Blood Bank. It will be a medium for the Blood Bank for proper management of the blood bank details as well as the donor details in an effective way. This project gave a clear understanding of the key drives that affect the demand for the report system. The maintenance and the elaboration of the project are done easily by administration. The administration can work efficiently for the help of this system. The Blood bank has to be on the reforms in older procedures like donor details, patient details, available blood, structures and systems and must take precedence over mere technological solutions. In this project it has tried to implement all those Facilities which are user friendly such as displaying proper error messages. The main usage of the system is to provide the facility to view the availability of the blood in the blood bank. The user can send request for the particular blood group to the blood bank. Also it has detailed information about the donor is maintained so that it makes blood bank staff to find the donor easily. The main success of the project is to search the donor's detail based on the required location. This will help to the user can contact the donor and it reduce the delay. Further we extent the system to allow the donors can register the details like update their donation details immediately and also allow the user for contact directly to the donor. This Blood Bank system is serving as a useful approach to maintain patient details and the donor's in the Blood Bank. It will be a medium for the Blood Bank for proper management of the blood bank details as well as the donor detail in an effective way. This project gave a clear understanding of the key drives that affect the demand for the report system. The maintenance and the elaboration of the project are done easily by administration. The administration can work efficiently for the help of this system. The Blood bank has to be on the reforms in older procedures like donor details, patient details, available blood, structures and systems and must take precedence over mere technological solutions.

1.2 NEED FOR ONLINE BLOOD BANK

- In this project it has tried to implement all those Facilities which are user friendly such as displaying proper error messages. The main usage of the system is to provide the facility to view the availability of the blood in the blood bank. The user can sent request for the particular blood group to the blood bank. Also it has detailed information about the donor is maintained so that it makes blood bank staff to find the donor easily.

- The main success of the project is to search the donor's detail based on the required location. This will help to the user can contact the donor and it reduce the delay. Further we extent the system to allow the donors can register the details like update their donation details immediately and also allow the user for contact directly to the donor.

1.3 PURPOSE AND IMPORTANCE OF ONLINE BLOOD BANK

The project titled "Blood Bank Management System" is mainly used for maintaining the stock record of the blood. In today's system first it is manual system and also it when person requires the particular type of blood and if that type is not available in that blood bank, then it is time consuming to arrange the blood from other blood bank it may affect the patient health because time is very important in accidental cases find out the locations. So, in web-based blood donation system is best for checking whether particular type of blood is available in stock or not and also it gives the location weather that available share with quick responses. Additionally, this application contains any person who is interested in donating the blood can register him in the same way if any organization wants to register itself with this site that can also register. Admin is the main authority who can do addition, deletion, and modification if required. In this system the user can easily find the available blood group and the donor's history. The admin can maintain the donor's details like blood group, location, last donated date, etc

1.4 DOMAIN OVERVIEW

Cloud services are infrastructure, platforms, or software that are hosted by third-party providers and made available to users through the internet. ... Users can access cloud services with nothing more than a computer, operating system, and internet connectivity or virtual private network (VPN).

The term "cloud services" refers to a wide range of services delivered on demand to companies and customers over the internet. These services are designed to provide easy, affordable access to applications and resources, without the need for internal infrastructure or hardware. From checking email to collaborating on documents, most employees use cloud services throughout the workday, whether they're aware of it or not.

Cloud services are fully managed by cloud computing vendors and service providers. They're made available to customers from the providers' servers, so there's no need for a company to host the applications on its own on-premises servers.

What are the benefits of cloud services?

Key advantages of using cloud services include:

The ability to scale

Because the cloud service provider supplies all necessary infrastructure and software, there's no need for a company to invest in its own resources or allocate extra IT staff to manage the service. This, in turn, makes it easy for the business to scale the solution as user needs change—whether that means increasing the number of licenses to accommodate a growing workforce or expanding and enhancing the applications themselves.

Lowered costs

Many cloud services are provided on a monthly or annual subscription basis, eliminating the need to pay for on-premises software licenses. This allows organizations to access software, storage and other services without having to invest in the underlying infrastructure or handle maintenance and upgrades.

Increased flexibility

With cloud services, companies can procure services on an on-demand, as-needed basis. If and when there's no longer a need for a particular application or platform, the business can simply cancel the subscription or shut down the service.

What types of cloud services are there?

Generally speaking, there are three basic types of cloud services:

Software as a Service (SaaS)

The most widely recognized type of cloud service is known as software as a service, or SaaS. This broad category encompasses a variety of services, such as file storage and backup, web-based email and project management tools.

Examples of SaaS cloud service providers include Dropbox, G Suite, Microsoft Office 365, Slack and Citrix Content Collaboration. In each of these applications, users can access, share, store and secure information in "the cloud."

Infrastructure as a Service (IaaS)

Infrastructure as a service, or IaaS, provides the infrastructure that many cloud service providers need to manage SaaS tools—but don't want to maintain themselves. It serves as the complete data centre framework, eliminating the need for resource-intensive, on-site installations. Examples of IaaS are Amazon Web Services (AWS), Microsoft Azure and

Google Compute Engine. These providers maintain all storage servers and networking hardware, and may also offer load balancing, application firewalls and more. Many well-known SaaS providers run on IaaS platforms.

Platform as a Service (PaaS)

The cloud service model known as platform as a service, or PaaS, serves as a web-based environment where developers can build cloud apps. PaaS provides a database, operating system and programming language that organizations can use to develop cloud-based software, without having to maintain the underlying elements. Many IaaS vendors, including the examples listed above, also offer PaaS capabilities.

How are cloud services delivered?

When deciding how to leverage cloud services, organizations must also decide which type of environment works best for the business: public cloud, private cloud or a mix of both.

Public cloud services

Services that a provider makes available to numerous customers over the web are referred to as public cloud services. The SaaS, IaaS and PaaS examples noted above are all providing public cloud-based services. The biggest benefit of using public cloud services is the ability to share resources at scale, allowing organizations to offer employees more capabilities than would likely be possible alone.

Private cloud services

Services that a provider does not make generally available to corporate users or subscribers are referred to as private cloud services. With a private cloud services model, apps and data are made available through the organization’s own internal infrastructure. The platform and software serve one company alone, and are not made available to external users. Companies that work with highly sensitive data, such as those in the healthcare and banking industries, often use private clouds to leverage advanced security protocols and extend resources in a virtualized environment as needed.

In a hybrid cloud environment, a private cloud solution is combined with public cloud services. This arrangement is often used when an organization needs to store sensitive data in the private cloud, but wants employees to access apps and resources in the public cloud for day-to-day communication and collaboration. Proprietary software is used to enable communication between the cloud services, often through a single IT management console.

What’s the future of cloud services:

As the availability of cloud services continues to expand, so will their applications in the corporate world. Whether a company chooses to extend existing on-premises software deployments or move 100% to the cloud, these services will continue to simplify how organizations deliver mission-critical apps and data to the workforce. From content collaboration and access control for employees to app delivery management and virtual desktop solutions for IT, plus a vast array of options in between, cloud services are transforming how people work and the ways businesses operate.



Fig 1.1 Cloud Services

1.5 ORGANIZATION OF THE PROJECT

1 Establishment of efficient blood transfusion benefits that are facilitated at national dimension and that can give adequate and opportune supplies of safe blood to meet the transfusion needs of the patient populace.

2 Collection of blood from deliberate non-compensated blood benefactors at generally safe of contaminations that can be transmitted through blood and blood items, the eliminating of family/substitution blood gift and the end of paid gift.

3 Quality-guaranteed screening of all given blood for transfusion-transmissible diseases, including HIV, hepatitis B, hepatitis C and syphilis, blood gathering and similarity testing, and readiness of blood segments. 4 Rational utilizations of blood to decrease pointless transfusions and limit the dangers related with transfusion, the utilization of options in contrast to transfusion, where conceivable, and safe clinical transfusion methods. 5 Implementation of successful quality frameworks, including quality administration, documentation, preparing of all staff and appraisal.

Every nation ought to build up a national framework for blood benefactor choice for the gift of entire blood, red cells, platelets, plasma and other blood parts, gave as entire blood or apheresis gifts. The appraisal of giver appropriateness ought to be embraced as per national criteria for blood contributor determination. These criteria ought to be reliably connected in each blood gift setting on each event of gift to all blood givers, including intentional non-compensated contributors and even where frameworks are as yet dependent on family/substitution givers and paid benefactors

1.6 SUMMARY

- Each nation ought to build up a national framework for blood contributor choice for the gift of blood or blood segments.
- All planned blood benefactors, either giving as entire blood gifts or through apheresis gifts, ought to be surveyed, before blood accumulation, for their reasonableness to give on each event of gift, in each blood gift setting.
- National contributor determination rules and criteria ought to be founded on epidemiological or potentially logical proof or, where proof is restricted or lacking, on best practices.
- Donor acknowledgment and deferral strategies for the anticipation of TTI ought to be founded on modern data on the neighbourhood the study of disease transmission of contaminations, the markers screened for, the accessibility of appropriate blood screening and corroborative measures, and the innovations being used.
- Blood transfusion administrations ought to have components for observation to screen developing contaminations and infections related with transmission through transfusion, and evaluate the danger of transmission and the conceivable outcomes to the blood supply of barring "in danger" givers.
- National giver determination criteria ought to characterize states of acknowledgment and deferral for every basis.
- Adequate assets, including an adequate number of qualified and prepared staff, ought to be made accessible for the predictable and dependable evaluation of contributor appropriateness for blood gift.
- Quality frameworks ought to be set up for blood benefactor choice, including determination criteria, staff preparing and documentation.
- Blood transfusion administrations ought to have frameworks for the warning and guiding of people who have been conceded from blood gift and for their referral for further administration if any irregularities are found.
- Blood transfusion administrations ought to build up systems for observing and assessment to evaluate the execution and viability of contributor choice criteria.
- National administrative instruments for the oversight of the elements of blood transfusion administrations ought to incorporate exercises identified with blood giver choice.

2. WORK DONE IN PHASE I

2.1 EXISTING SYSTEM

In previous system first it is manual system and also it when person requires the particular type of blood and if that type of blood is not available in that blood bank. Then time consuming to arrange the blood from other blood bank. So, the patient was affected the health because time is very important in accidental cases. In additionally store the information of the donor and updating the details. These details are all stored in special records. The existing system is the manual system in which the user first visits the hospital and checks for availability of the particular blood group. In this existing process if blood is required for a patient, the blood bank will check whether blood is available to them if not they search for donor in files. This process is time consuming and requires more amount of time. The blood bank is not able to immediately contact with the donor because of the manual work of the reports. The main drawback of the existing system is not comfortable to comparing the details as well as getting the performance report in frequently.

2.1.1 Drawback of Existing System

The main drawback of the existing system is

- The system consumes more manpower to store the details.
- It is not providing the proper information about the donor and blood bank information.
- This is not a user-friendly process.
- The maintenance of the details is difficult process.
- There is possible to making mistakes in the man handling information.
- Manual process is very time-consuming process □ The patient health was heavily affected.

2.2 PROPOSED SYSTEM

The proposed system will carry out the defects in the previous systems. The main disappointments of previous systems are over come in this project. The performance is faster and easy accessible to the blood bank detail when required blood. The proposed system is a web-based application and maintains a centralized repository of all related information. There is possible to view the details of the donor which is based on the patient location.

This proposed system has the mechanism to the user will get the details like available blood, send request. The system maintains the database of stock in centralized server system. All the blood bank updates the regular stock on web server and when someone require any type of blood that person can easily check whether the blood is available and also cost. It will helpful for maintaining the database as well as cost so that no one will get more cost for the blood bag. Each hospital maintains the record of patient and record of blood bank so it is easily available. The main benefit of the web-based system is to maintain the record and simplicity for the person for checking the availability of blood.

2.3 BLOCK DIAGRAM

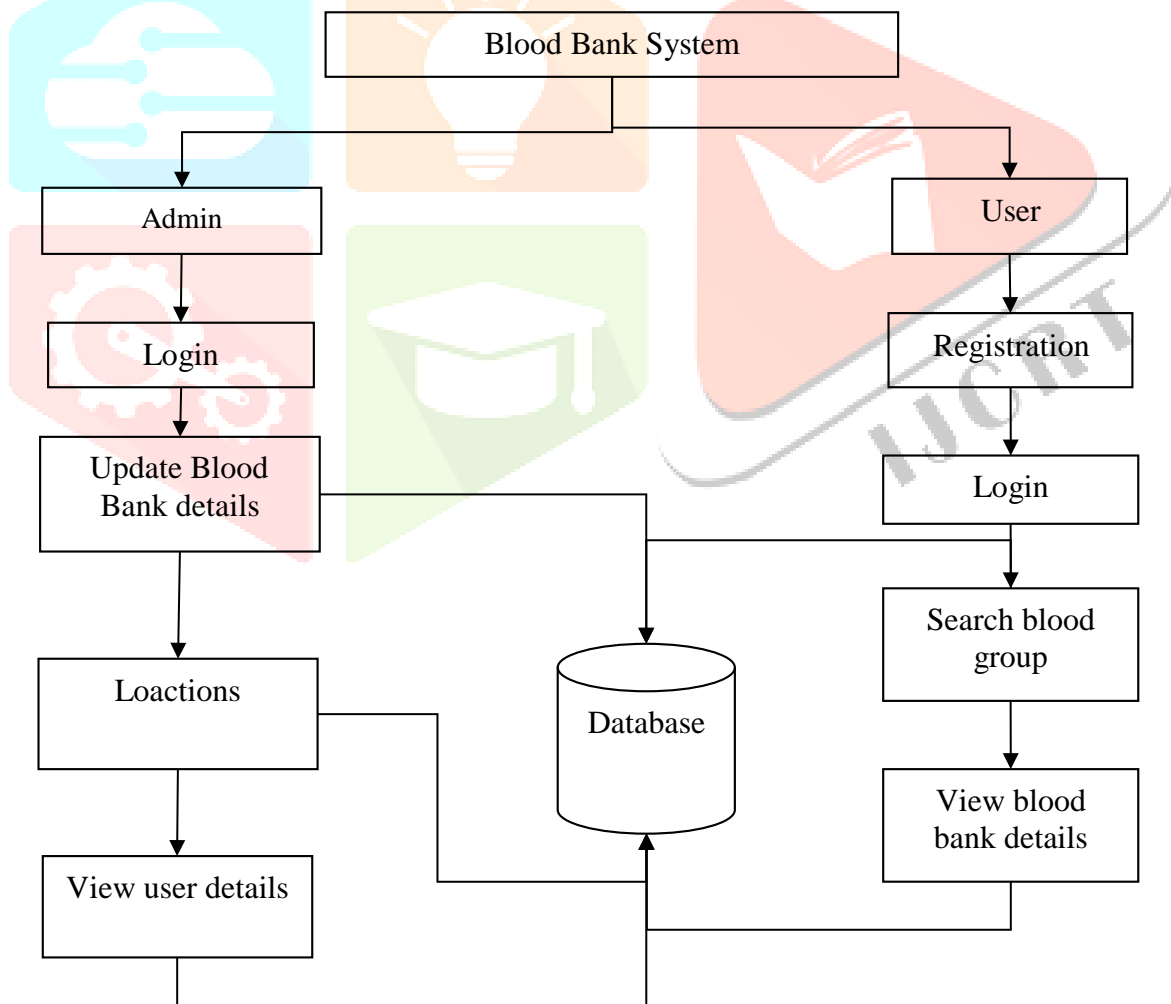
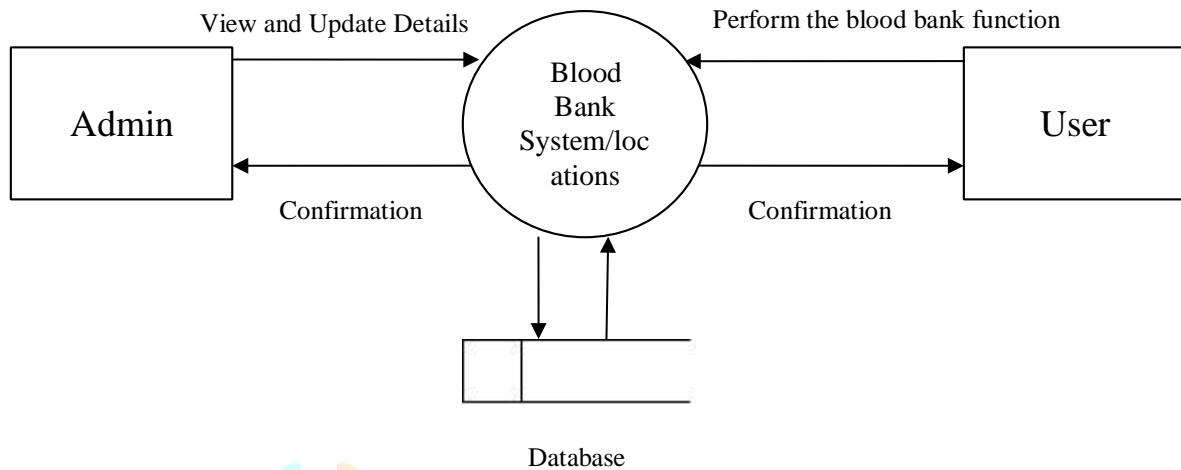


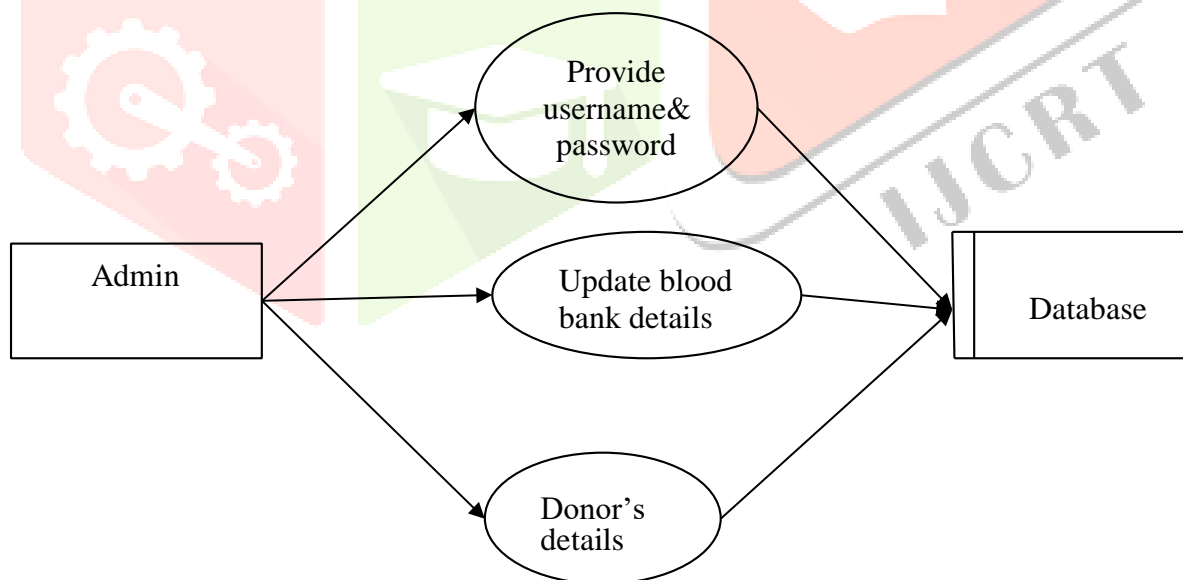
Fig 2.1 Blood Donar Block Diagram

DFD LEVEL-0



DFD LEVEL-1

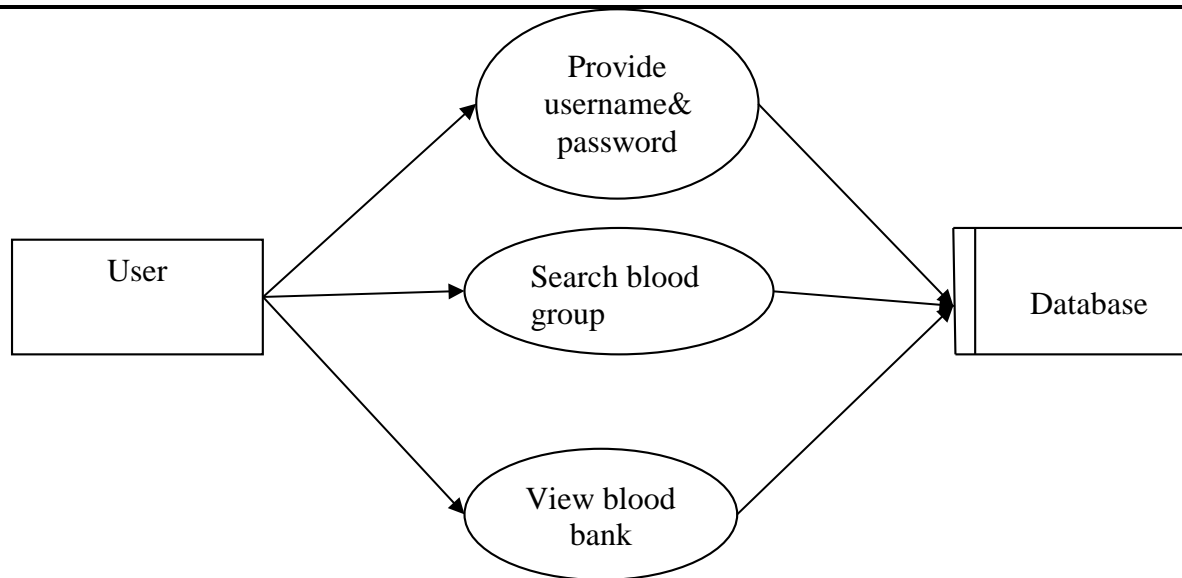
The next stage is to create the Level 1 Data Flow Diagram. This highlights the main functions carried out by the system. As a rule, to describe the system using between two and seven functions - two being a simple system and seven being a complicated system. This enables us to keep the model manageable on screen or paper.



Data Flow Diagram Level 1

DFD LEVEL-2

A Data Flow Diagram (DFD) tracks processes and their data paths within the business or system boundary under investigation. A DFD defines each domain boundary and illustrates the logical movement and transformation of data within the defined boundary. The diagram shows 'what' input data enters the domain, 'what' logical processes the domain applies to that data, and 'what' output data leaves the domain. Essentially, a DFD is a tool for process modelling and one of the oldest



Data Flow Diagram Level 2

ARCHITECTURAL DIAGRAM

A system architecture or systems architecture is the conceptual model that defines the structure, behaviour, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviours of the system. System architecture can comprise system components, the externally visible properties of those components, the relationships (e.g. the behaviour) between them. It can provide a plan from which products can be procured, and systems developed, that will work together to implement the overall system. There have been efforts to formalize languages to describe system architecture; collectively these are called architecture description languages (ADLs).

Various organizations define systems architecture in different ways, including:

- An allocated arrangement of physical elements which provides the design solution for a consumer product or life-cycle process intended to satisfy the requirements of the functional architecture and the requirements baseline.
- Architecture comprises the most important, pervasive, top-level, strategic inventions, decisions, and their associated rationales about the overall structure (i.e., essential elements and their relationships) and associated characteristics and behaviour.
- If documented, it may include information such as a detailed inventory of current hardware, software and networking capabilities; a description of long-range plans and priorities for future purchases, and a plan for upgrading and/or replacing dated equipment and software. The composite of the design architectures for products and their life-cycle processes.

3.SYSTEM REQUIREMENTS

PHP: Hypertext Pre-processor (the name is a recursive acronym) is a widely used, general-purpose scripting language that was originally designed for web development to produce dynamic web pages. For this purpose, PHP code is embedded into the HTML source document and interpreted by a web server with a PHP processor module, which generates the web page document. As a general-purpose programming language, PHP code is processed by an interpreter application in command-line mode performing desired operating system operations and producing program output on its standard output channel. It may also function as a graphical application. PHP is available as a processor for most modern web servers and as standalone interpreter on most operating systems and computing platforms

Hypertext refers to files linked together using hyperlinks, such as HTML (Hyper Text Markup Language) files. Pre-processing is executing instructions that modify the output. Below is a demonstration of the difference between HTML and PHP files.

BACK-END SOFTWARE**FEATURES OF MY SQL****MySQL Introduction**

The MySQL® database has become the world's most popular open source database because of its consistent fast performance, high reliability and ease of use. It's used on every continent -- Yes, even Antarctica! -- by individual Web developers as well as many of the world's largest and fastest-growing organizations to save time and money powering their high-volume Web sites, business-critical systems and packaged software -- including industry leaders such as Yahoo!, Alcatel-Lucent, Google, Nokia, YouTube, and Zappos.com.

3.1 LIST OF MODULES

- **Admin Module**
- **User Models**

3.2 MODULE DESCRIPTION **Login**

In this module, the authenticate person only for login the system using user name and password. The admin can perform following operation such as blood details, donors details and blood bank details. These details are stored in the database.

 Update blood bank details

In this module, admin can add blood bank details in the system. The details such as blood group name, hospital name, place and update available blood bank details are stored in the database. The system can automatically display on available and unavailable blood bank details. The Blood details maintain all details about blood donors, all blood groups and number packages available for specified blood group.

 Donors details

Admin can update donor's details in system. The donor's details such as donor name, place, blood group name and hospital name. The details are stored in the system. And the user can easily search the particular person by selecting the respective blood group.

 Register Page:

The registration page is useful for the new user to register themselves by giving their valid details such as e-mail id, user name, Phone number, etc. The user has to fill all the details else message is displayed to the user. Once all the fields are filled the user clicks the Register button, which submits the data to the database. Here it checks the user table, whether the email-id is already exists, if yes error message is displayed else store the details to the user table. If all details are correct the users view the main page.

 Login Page

The login page is used for logging in the site to buy the products for existing user. To buy product the user must first login to the site. After filling all the fields the user can click the 'Submit' button to sign in. It checks the user table as, whether the username and password already exist, if yes allows the user to add the product to the cart else displays the error message. Also the user should fill all the fields, if not it shows error message. If all details are correct the user views the main page.

 View blood bank details

User can login system and view various blood bank details in the website. User can search respective blood group of the nearest place in the system and collect respective blood group in the hospital. And the user can access from any place to know about the blood details and collect the blood from the particular area.

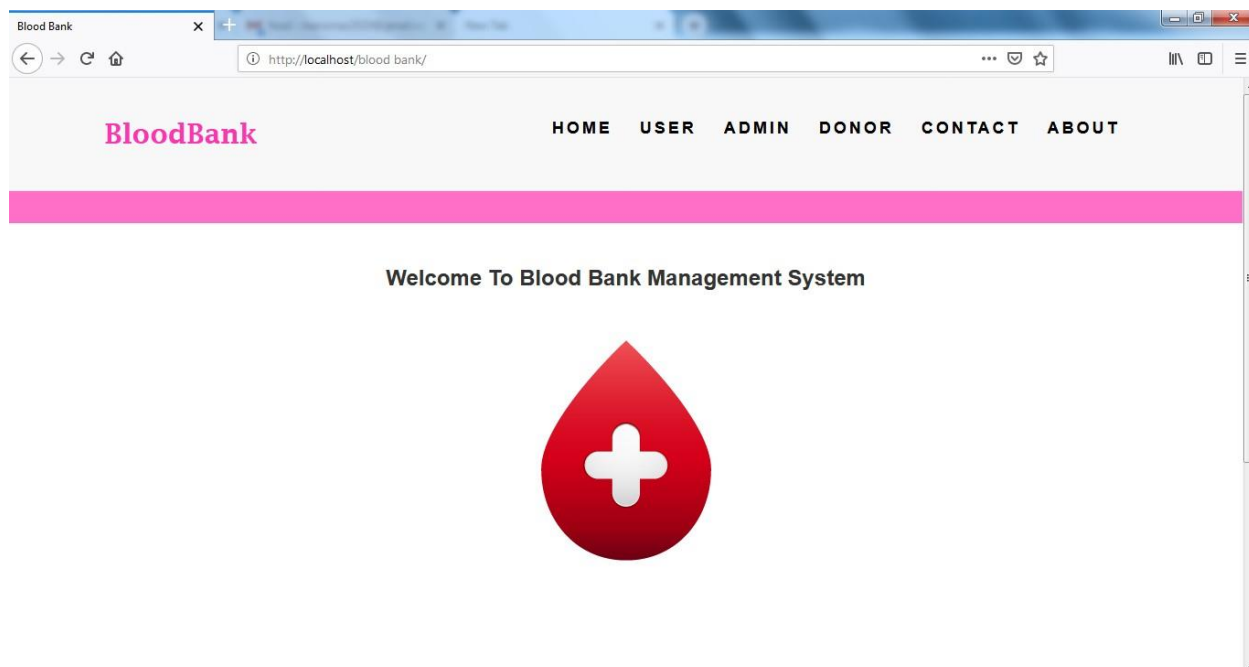
Simulation Output:

Fig 3.1 Web Based output

3.3 RESULTS AND DISCUSSION

- Acceptance Blood testing can be defined in many ways, but a simple definition is the succeeds when the software functions in a manner that can be reasonable expected by the customer. After the acceptance test has been conducted, one of the two possible conditions exists. This is to fine whether the inputs are accepted by the database or other validations. For example, accept only numbers in the numeric field, date format data in the date field.
- The function of performance characteristics to specification and is accepted.
- A deviation from specification is uncovered and a deficiency list is created.

4. CONCLUSION AND FUTURE WORK**4.1 CONCLUSION**

This Blood Bank system is serving as a useful approach to maintain patient details and the donors in the Blood Bank. It will be a medium for the Blood Bank for proper management of the blood bank details as well as the donor details in an effective way. This project gave a clear understanding of the key drives that affect the demand for the report system. The maintenance and the elaboration of the project are done easily by administration locations. The administration can work efficiently for the help of this system. The Blood bank has to be on the reforms in older procedures like donor details, patient details, available blood, structures and systems and must take precedence over mere technological solutions.

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