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PROJECT REPORT ON
BLOOD SYSTEM

BY:
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Submitted to the Department of Computer Science and Application in partial fulfillment of the requirements of the degree of:

Masters of Computer Applications

Department of Computer Science & Applications
Modi Institute of Management & Technology, Kota

CERTIFICATE:

Certified that project work entitled "Blood System" is bona-fide work carried out by Ajay Kumar Bansal at Techno Globe, Kota in partial fulfillment for the award of " Master of Computer Applications" from Rajasthan Technical University Kota, Kota during the academic year 2022-2023

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THIS IS TO CERTIFY THAT

Mr./Ms. AJAY KUMAR BANSAL

has Successfully completed training for

WEB DEVELOPMEN (Front & Back end)

from 11-06-2023 to 15-11-2023

Awarded on : 1-12-2023

We wish All the Best fo him/her future.

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GM-Admin & Training

SIAT

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Internal/ Guide:
Mr. Ramakant Gautam

ACKNOWLEDGMENT:

We would like to take an opportunity as privilege to express our deep sense of gratitude and thanks to our project guide Mr. Rama Kant Sir for guiding us right inception till the successful completion of the project.

We would like to thanks Mr. N.K. Joshi Sir (Director, Modi Institute of Management & Technology, Kota) and we also want to express our sincere thanks to Mr. Kamal Kulshrestha Sir, (Head of the Department of Computer Applications) for all the support and guidance. Thanks and appreciation to all our colleagues for their helpful comment and guidance.

We would also thank our Institute and all faculty members without whom this project would have been a distant reality.

PROJECT TEAM	ROLL NUMBER
AJAY KUMAR BANSAL	22CMOXX604

DECLARATION BY THE CANDIDATES:

We **Ajay Kumar Bansal** are the candidates for the award of **Master of Computer Applications, Rajasthan Technical University**, Kota do hereby affirm that the present project entitled "**Blood System** "

PREFACE:

This project is developed to computerization and study of “Blood System” for the award of Master of Computer Applications, Rajasthan Technical University, Kota. By the completion of this project our most grateful thanks to staff of

This is a **PHP Project** entitled **Blood Distribution System**. This project will help people get blood to the right place at the right time. This project will serve as a bridge between blood donner, blood bank and patient. Through this platform the process of blood transfusion will be easier. In this project, those who want to donate blood, and all blood banks, their data will be stored. and anyone who needs blood can contact us to donate according to their need or blood group. By this platform user can find out from home which blood group is there in the blood bank or which one should be used. In this project, all the blood banks can create their own account and show which blood group is available in their blood bank and which is not.**Objective & Scope**

OBJECTIVE

This is a web oriented application allows us to access the whole information about the people' blood groups, address, contacts, cities etc. This application provides a required blood group of the patients. Here we will get the latest information about the required blood group of the person. This generic application designed for providing emergency blood group and provide the financial help form the other peoples. It also provides financial support and food for the poor patients which have not money for the good treatment and not get the food at the situation of the illness .that a faculty can also check about his daily schedule, can upload assignments, and notices to the students. Here adminof this websites will manage and secure all the data of the peoples identity.

Scope

- blood information: Through this service anyone can access the completeinformation about the blood groups of the peoples etc.
- financial help : through this service we can help financial help of the requiredperson and family .
- food provide : through the website we can provides healthy food for the patientwhich are not able to buy the food .
- connecting people for the social services: Through the website

we connectmultiple people from each other to providing the social services.

- Aware to the blood donation camp: through the website we can aware of thepeople about the blood donation camp which are organized from the other people.

1. Theoretical Background

Sometime in the hospital rare blood group are not available for the patient and lots of time are waste for the arranging rare blood groups of blood. Doctors and families of the patient are searching for the rare blood group for connecting relations and other hospitals and blood bank. All of this lots of time are waste. Sometime required blood group are not provide as right time than doctors are not save the lives of the patient because of the unavailable of the blood h.

Problems in existing system:

- Online facilities of the provide blood are not available.
- Sometime rare blood group are not available in the hospital.
- Sometime rare blood group are also not available in the blood bank.
- The offline process of the searching rare blood group are time consuming.
- It was time consuming process.
- Sometime we cannot get the rare blood group as the right time.

Solution to these problems:

The development of the new system contains the following activities, which try toautomate the entire process keeping in view of the database integration approach.

- Users are connecting form other people as friendly.
- The system provides the rare blood group person and connecting those personwhich blood group of blood are needed the patient much easier and flexible.
- It can be accessed over the Internet.
- Various blood groups of the person 's details are provide on this platform.
- By the help of the this web application we can save the lots of time for finding therequired blood group.
- In this application the users data are kept secure in the database.

2. Problem Definition

The problem is to provide the complete information about the all types of the blood group. In which the doctors, people and anyone can access the information and will be familiar with other persons. It will provide facilities connecting people as friendly environment for the people doctor and anyone by getting information of the required blood group person's addresses, city, blood group, contact number etc.

3. System analysis & planning v/s user requirement

4.1 User requirements:

The following requirements are raised during the analysis of the needs of the users:

- First of all A person registration on the SLDB application and fill the al thenecessary details according to the sign up form.
- A Person Should be able to login to the system through the first page of theApplication.
- The Administrator can create users as per user requirement.
- Admin can upload the data for a particular Student. On successful completion ofupload, user (everyone) can view reports.
- A registered person are connected to other person as friendly.
- A user can connected those person which blood group are same as the requiredblood group.
- user can see details of the other person like blood group, city , addresses contactnumber.
- There will be a separate page for every registered person where are shoe thedetails of the all other registered peoples in the table from.
- users can just view the record of peoples with the username and passwordprovided.

After analyzing the requirements of the task to be performed, the next step is to analyze the problem and understand its context. The first activity in the phase is studying the existing system and other is to understand the requirements and domain of the new system. Both the activities are equally important, but the first activity serves as a basis of giving the functional specifications and then successful design of the proposed system. Understanding the properties and requirements of a new system is more difficult and

requires creative thinking and understanding of existing running system is also difficult, improper understanding of present system can lead diversion from solution.

4.2 Analysis Model

This document play a vital role in the development of life cycle (SDLC) as it describes the complete requirement of the system. It means for use by developers and will be the basic during testing phase. Any changes made to the requirements in the future will have to go through formal change approval process.

SPIRAL MODEL was defined by Barry Boehm in his 1988 article, "A spiral Model of Software Development and Enhancement. This model was not the first model to discuss iterative development, but it was the first model to explain why the iteration models.

As originally envisioned, the iterations were typically 6 months to 2 years long. Each phase starts with a design goal and ends with a client reviewing the progress thus far. Analysis and engineering efforts are applied at each phase of the project, with an eye toward

the end goal of the project.

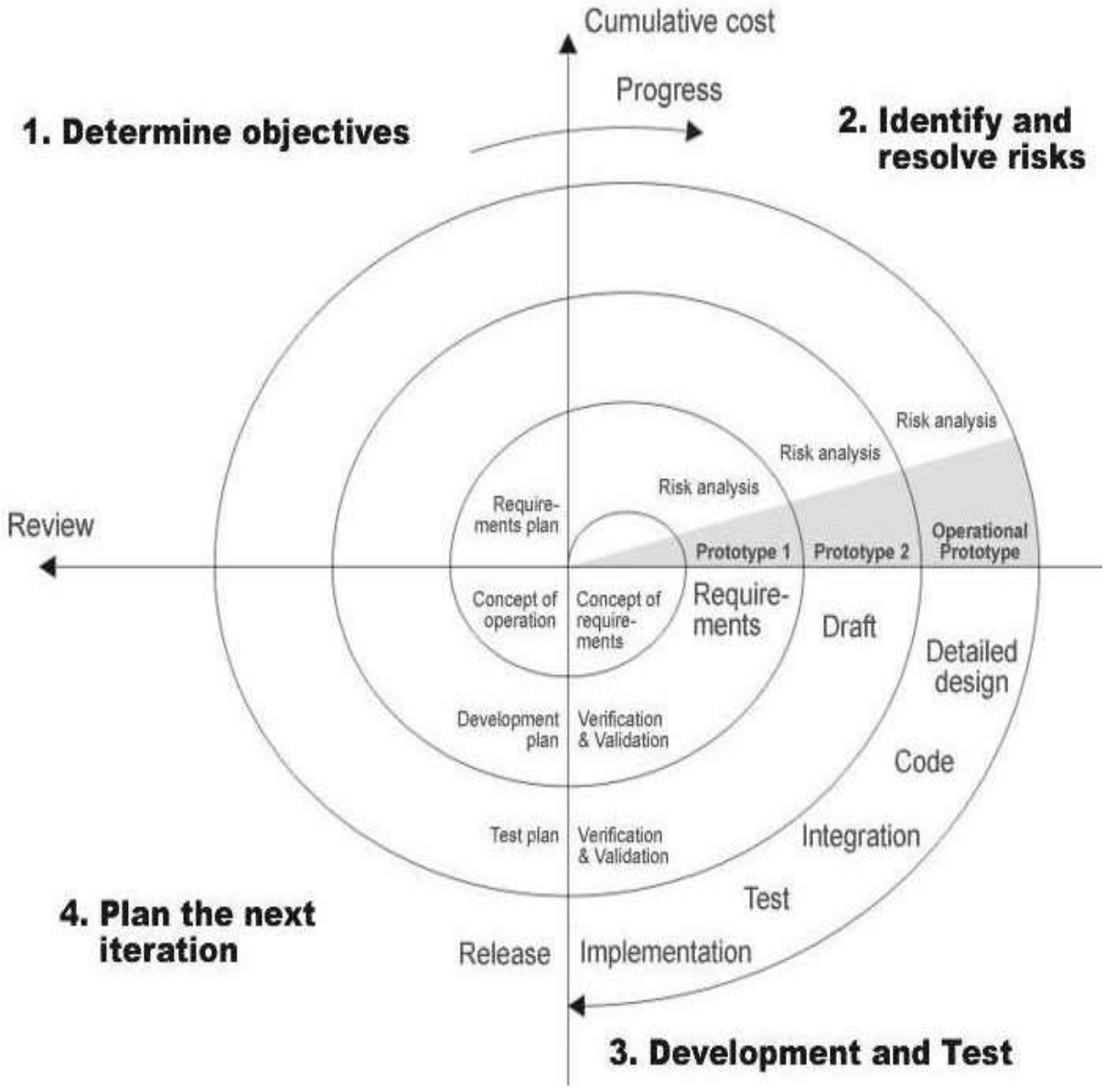
The steps for Spiral Model can be generalized as follows:

- The new system requirements are defined in as much details as possible. This usually involves interviewing a number of users representing all the external or internal users and other aspects of the existing system.
- A preliminary design is created for the new system.
- A first prototype of the new system is constructed from the preliminary design. This is usually a scaled-down system, and represents an approximation of the characteristics of the final product.
- A second prototype is evolved by a fourfold procedure:
    1. Evaluating the first prototype in terms of its strengths, weakness, and risks.
    2. Defining the requirements of the second prototype.
    3. Planning and designing the second prototype.
    4. Constructing and testing the second prototype.
- At the customer option, the entire project can be aborted if the risk is deemed too great. Risk factors might involved development cost overruns, operating- cost miscalculation, or any other factor that could, in the customer's judgment, result in a less-than-satisfactory final product.
- The existing prototype is evaluated in the same manner as

was the previous prototype, and if necessary, another prototype is developed from it according to the fourfold procedure outlined above.

- The preceding steps are iterated until the customer is satisfied that the refined prototype represents the final product desired.
- The final system is constructed, based on the refined prototype.
- The final system is thoroughly evaluated and tested. Routine maintenance is carried on a continuing basis to prevent large scale failures and to minimize down time.

The following diagram shows how a spiral model acts like:



4.3 Study of the System:

4.3.1 Graphical user interface

In the flexibility of the uses the interface has been developed a graphics concept in mind, associated through a browses interface. The GUI'S at the top level have been categorized as

1. Administrative user interface
2. The operational or generic user interface

The administrative user interface concentrates on the consistent information that is practically, part of the organizational activities and which needs proper authentication for the data collection. The interfaces help the administrations with all the transactional states like Data insertion, Data deletion and Date updation along with the extensive data search capabilities.

The operational or generic user interface helps the users upon the system in transactions through the existing data and required services. The operational user interface also helps the ordinary users in managing their own information helps the ordinary users in managing their own information in a customized manner as per the assisted flexibilities.

4.4 Number of Modules

The system after careful analysis has been identified to be presented with the followingmodules:

The modules involved are:

1. people information: Through this service one can access the

complete information about the college campus such as blood group, city, addresses, contact no etc.

2. people tracking: Any hospital or any blood bank organization that want to check the summary about the people blood group, so that they will be able to choose the particular required blood group of the person for their campus patient.

3. Blood camp Events: it will give information about the blood camp event whichare organized by the social worker in the different place.

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4. Information about rare blood group person: It will help in maintaining complete information about the rare blood group person which are not easily find by the help of the SLDB project we can easily find the rare blood group person details easily without spending time.

5. SYSTEM PLANNING (PERT CHART)

Perform and evaluate feasibility studies like cost-benefit analysis, technical feasibility, time feasibility and operational feasibility for the project. Project Scheduling should be made using PERT charts.

Feasibility study is carried out t decide whether the proposed system is feasible for the company. The feasibility study is to serve as a decision document it must answerthree key questions:

1. Is there a new and better way to do the job that will benefit the user?
2. What are the cost and the savings of the alternative(s)?
3. What is recommended?

Technical feasibility:

Technical feasibility centers on the existing computer system i.e. Hardware, Software etc. Bank requires SQL database management that are all easily available with extensive development support through manuals and blogs.

Economical feasibility:

Economical Feasibility is the most frequently used method for evaluating the effectiveness of a candidate system. More commonly known as Cost/ Benefit analysis, the procedure is to determine the benefits and savings that are expected from the candidate system and compare them with costs. If the benefits outweigh costs, then the decision is made to design and implement the system.

6. Methodology Adopted, System Implementation & Details ofHardware & Software Used

6.1 Methodology adopted and System implementation:

1. Apache tomcat is used as a web server to host the application.
2. All the environment variables are set.
3. The application is pasted in the webapps folder.
4. Web server is started now.
5. Application is run using the web browser by typing http://localhost/cisWeb.xml file is used to control the flow and user actions.

6.2 Details of hardware & software used:

Hardware Specification (Minimum):

Disc Space:	40 GB
PC Used:	IBM Compatible
Processor:	intel® core i5
Memory:	512 MB RAM
File System:	32 Bit

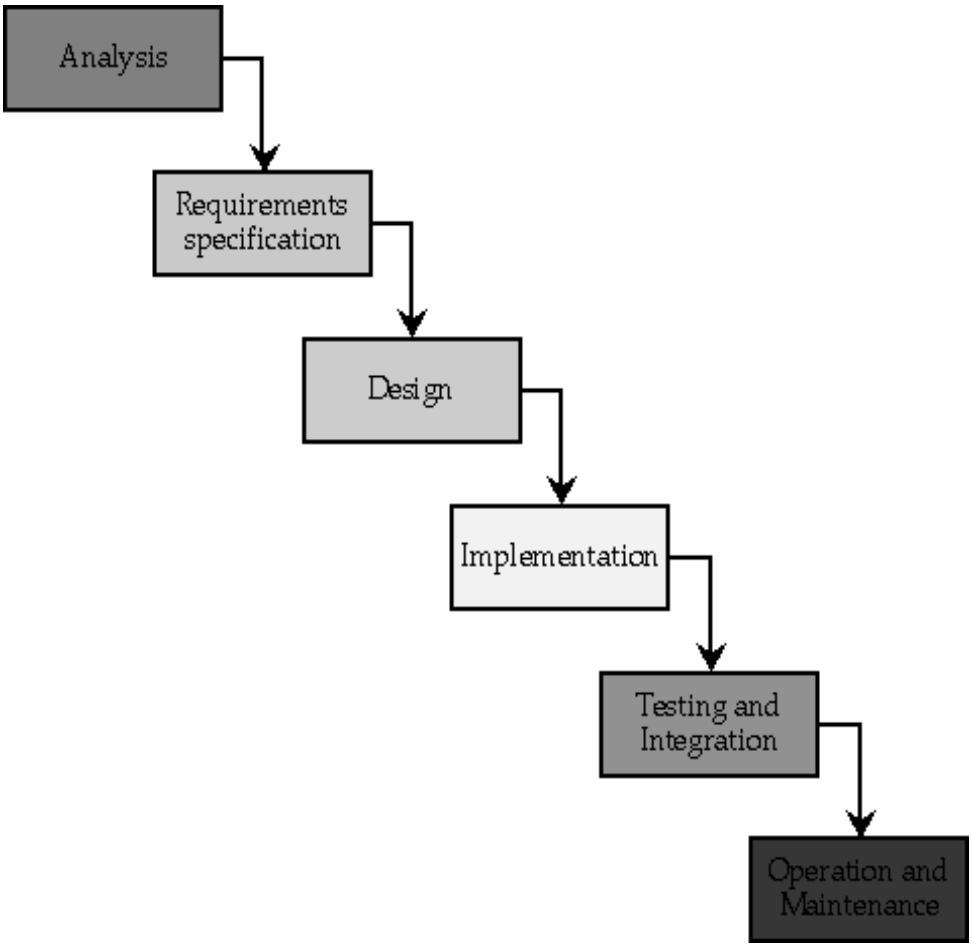
Software Specification:

Operating System (Server Side): Microsoft windows 11 . **Operating System (Client Side):** Microsoft Windows 11. **Client End Language:** HTML

Local Validation:	PHP
Server Side Language:	PHP
Database:	My Sql 2000
Web Server:	XAMPP server
Web Browser:	Internet Explorer 8/chrome

7. DETAILED LIFE CYCLE OF PROJECT

We have used Waterfall Model as Software Engineering life Cycle Process. It is thesimplest; oldest and most widely used process model for software development .This model acquires its name from the fact that classic software life cycle is represented as a sequence of descending steps.



7.1 Requirement Analysis:

This process is also known as feasibility study. In this phase, the development team studied the site requirement. They investigate the need for possible dynamic representation of the site and increase security features. By the end of feasibility study, the team furnishes a document that holds the different specific recommendations for the candidate system. It also includes personnel assignments, costs, project schedules, target dates etc. the requirement gathering process is intensified and focused specially onsoftware. The essential purpose of this phase is to find the need and to define the problem that needs to be solved. During this phase following facts were gathered.

- Determined the user need
- Identified the facts
- Establish the goals and objective for the proposed system
- Feasibility for the new system

7.2 System Analysis and Design:

In this phase the software's overall structure and its nuances are defined. In terms ofclient server technology the no of tiers needed for the package architecture, database design, data structure design etc are defined in this phase. Analysis and Design are very crucial in entire development cycle. Any glitch in this phase could be expensive to solve in the later stage of software development. Hence following is the essential approach taken during website designing:

- DFD
- Database Designing
- Form Designing
- Pseudo code for methods

7.3 Testing:

Once the code is generated, the website testing begins. Different testing methodologies are done to unravel the bugs that were committed during the previousphases. Different testing methodologies are used:

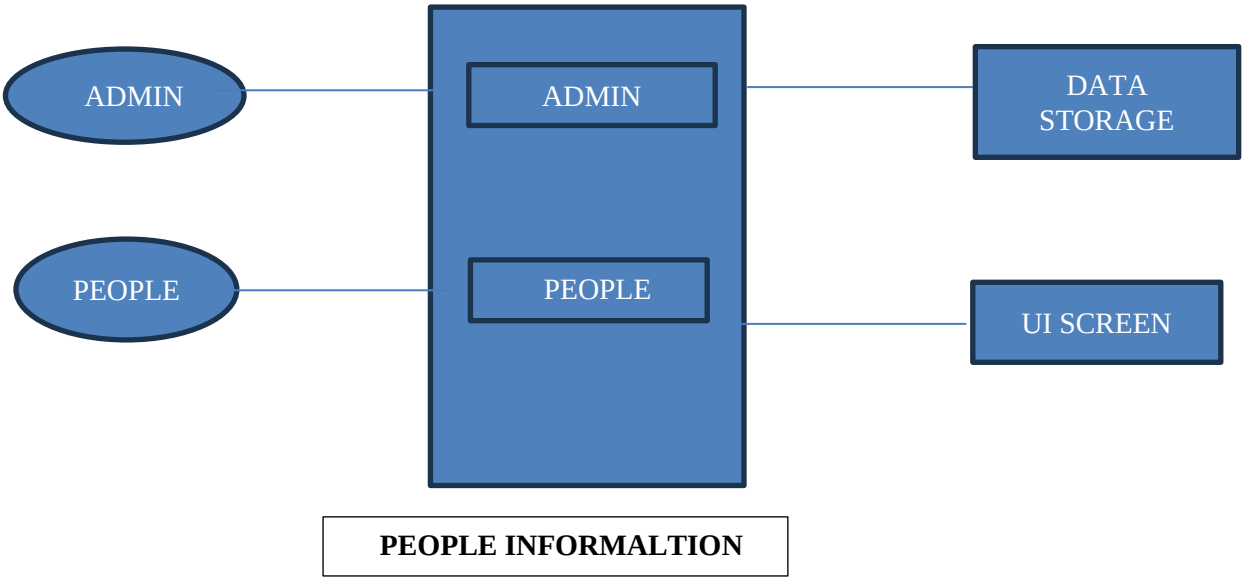
- Acceptance testing
- White Box Testing
- Black Box Testing

8. ER-Diagram and Data Flow Diagram

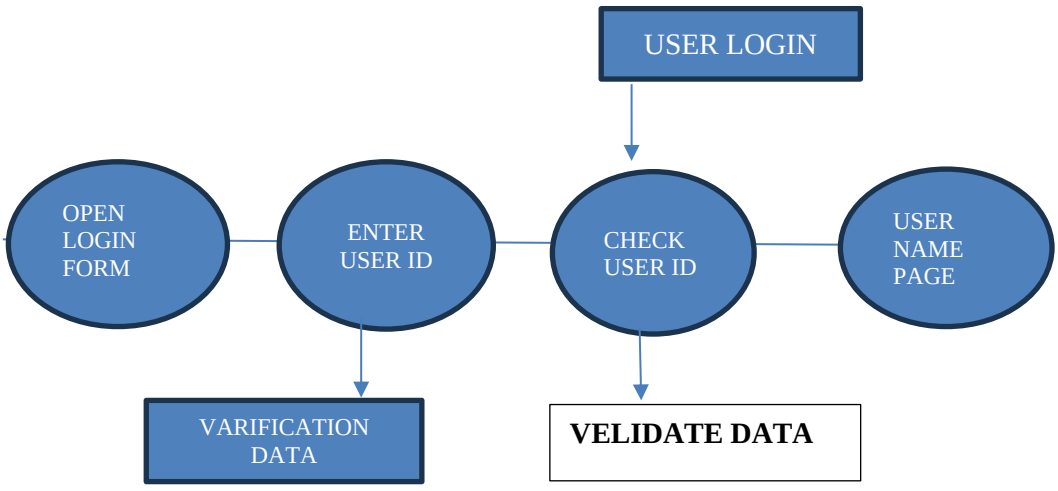
8.1 ER-Diagram:-

8.2 Data Flow Diagram:-

8.2.1 Context 0th Level Diagram:

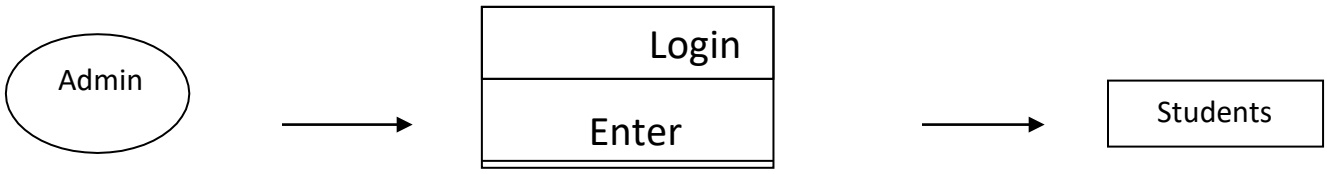


Login DFD Diagram:-

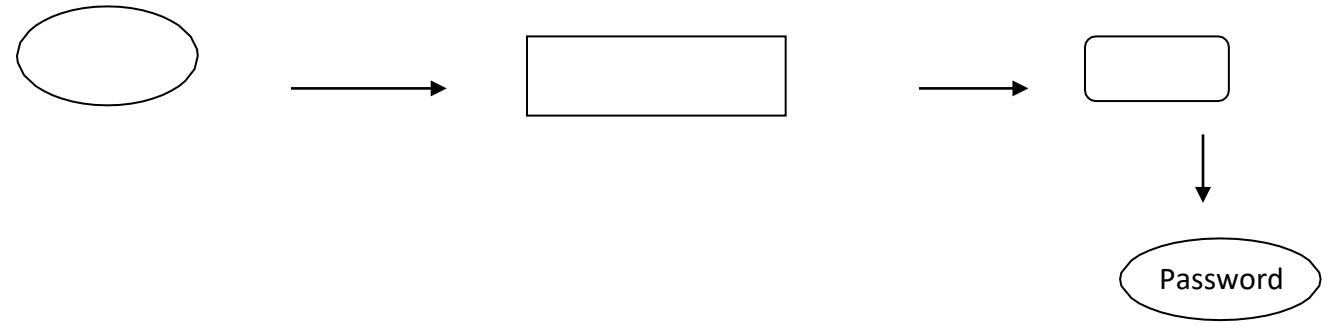


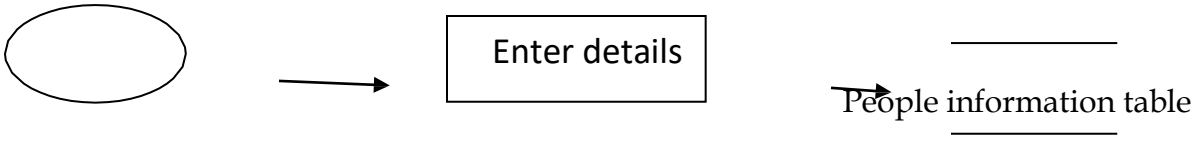
8.2.2 Admin Details Data Flow:

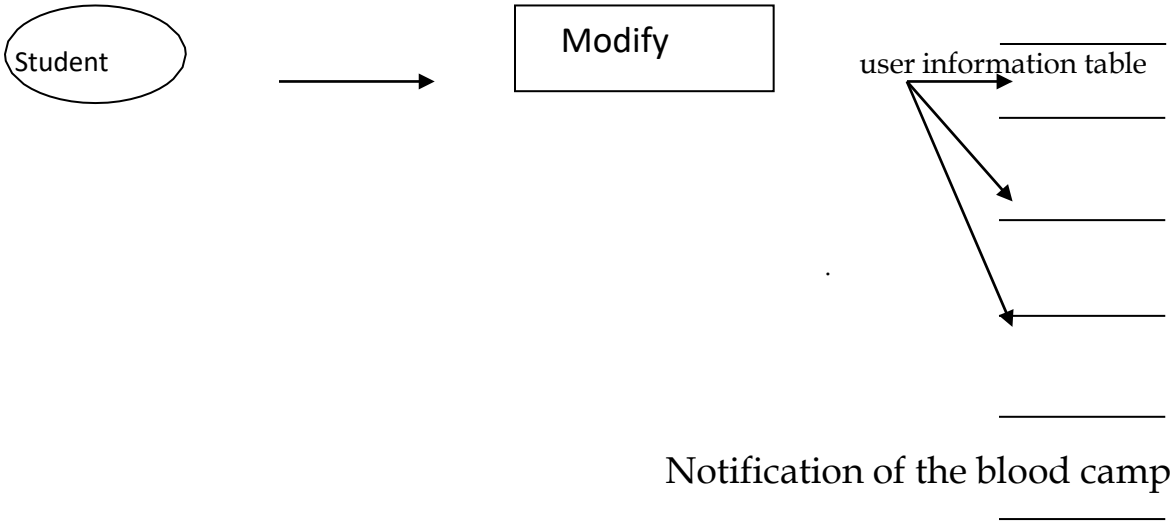
1st level DFD:



2nd Level DFD

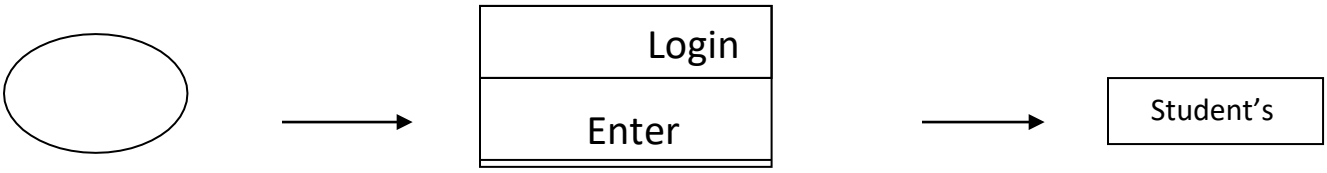




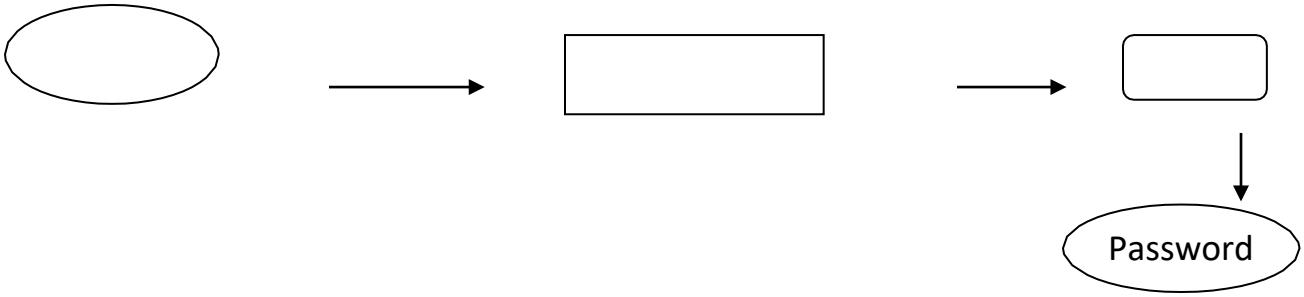


8.2.3 people Details Data

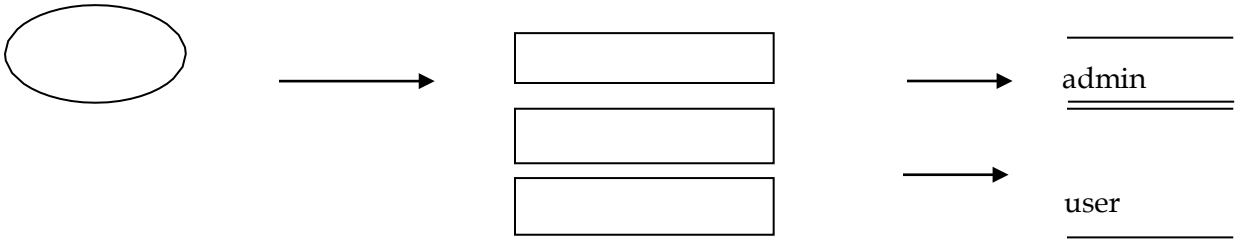
Flow1st level DFD



2nd level DFD



User information table



8.3 Database Design:-

9. Input and Output Screen Design (Snapshots)

10. Methodology used for testing

The completion of a system will be achieved only after it has been thoroughly tested. Though this gives a feel the project is completed, there cannot be any project without going through this stage. Hence in this stage it is decided whether the project can undergo the real time environment execution without any break downs, therefore a package can berejected even at this stage.

10.1 Testing methods

Software testing methods are traditionally divided into black box testing and white box testing. These two approaches are used to describe the point of view that a test engineer takes when designing test cases.

1) **Black box testing** - Black box testing treats the software as a "black box," without any knowledge of internal implementation. Black box testing methods include: equivalence partitioning, boundary value analysis, all-pairs testing, fuzz testing, model-based testing, traceability matrix, exploratory testing and specification-based testing.
2) **White box testing** - White box testing, by contrast to black box testing, is when the tester has access to the internal data structures and algorithms (and the code that implement these).White box testing methods can also be used to evaluate the completeness of a test suite that was created with black box testing methods. This allows the software team to examine

parts of a system that are rarely tested and ensures that the most important function points have been tested.

3) **Grey Box Testing** - Grey box testing involves having access to internal data structures and algorithms for purposes of designing the test cases, but testing at the user, or black-box level. Manipulating input data and formatting output do not qualify as "grey box," because the input and output are clearly outside of the "black-box" that we are calling the system under test. This distinction is particularly important when conducting integration testing between two modules of code written by two different developers, where only the interfaces are exposed for test. Grey box testing may also include reverse engineering to determine, for instance, boundary values or error messages.

4) **Acceptance testing -** Acceptance testing can mean one of two things:

1. A smoke test is used as an acceptance test prior to introducing a build to the maintesting process.
2. Acceptance testing performed by the customer is known as user acceptance testing (UAT).

5) **Regression Testing -** Regression testing is any type of software testing that seeks to uncover software regressions. Such regression occurs whenever software functionality that was previously working correctly stops working as intended. Typically regressions occur as an unintended consequence of program changes. Common methods of regression testing include re-running previously run tests and checking whether

previously fixed faults have re-emerged.

6) **Non Functional Software Testing - Special** methods exist to test non-functional aspects of software.

- Performance testing checks to see if the software can handle large quantities of data or users. This is generally referred to as software scalability. This activity of Non Functional Software Testing is often times referred to as Load Testing.
- Stability testing checks to see if the software can continuously function well in or above an acceptable period. This activity of Non Functional Software Testing is often times referred to as indurations test.
- Usability testing is needed to check if the user interface is easy to use andunderstand.
- Security testing is essential for software which processes confidential data and to prevent system intrusion by hackers.
- Internationalization and localization is needed to test these aspects of software, forwhich a pseudo localization method can be used.

11. User/Operational Manual - Including SECURITY ASPECTS,ACCESS RIGHTS, BACK UP, CONTROLS, etc.

Certainly! A User/Operational Manual outlines important information for users and operators to effectively and securely use a system or service. Here's a brief overview of key aspects typically covered in such a manual:

Security Aspects

Confidentiality of Donor and Patient Information

Physical Security Measures
Cybersecurity Best Practices

Access Rights

User Roles and Permissions
Access Modification and Revocation
Authentication Procedures

Dashboard and navigation

Dash board overview
Navigation through the system
Customizing user interface setting

Testing and Quality Control

Recording laboratory test rusult
Quality control procedures
Flagging and managing non-compliant product

Backup

Regular data Backup
Backup storage and encryption
Data recovering procedures

12. Future Enhancements

Smart Donor Engagement:
Develop a mobile app for donors, allowing easy appointment scheduling and providing real-time updates on their contributions.

Predictive Inventory Management:
Implement predictive analytics to optimize blood product inventory, preventing shortages and minimizing wastage.

Blockchain Traceability:
Explore blockchain technology for enhanced traceability, ensuring transparency in the blood supply chain.

Telemedicine Integration:

Integrate telemedicine solutions to facilitate remote health screening for potential donors.

AI-driven Quality Control:
Investigate AI algorithms for improved accuracy and efficiency in laboratory testing and quality control.

Enhanced Reporting Tools:
Expand reporting capabilities and customizable dashboards for comprehensive insights into donor demographics and system performance.

Multi-factor Authentication:
Strengthen security with multi-factor authentication and conduct regular security audits to identify and address vulnerabilities.

User Training Module:
Develop an interactive training module and knowledge base within the system for ongoing user education.

Environmental Sustainability Initiatives:
Explore eco-friendly practices, such as electronic documentation and sustainable packaging, to reduce environmental impact.

13. Conclusion

Blood System serves as a crucial tool in efficiently managing blood donations, ensuring quality control, and facilitating distribution. As we look to the future, planned enhancements, such as smart donor engagement, predictive analytics, and advanced security measures, underscore our commitment to innovation and system excellence. Continuous collaboration and adaptation to emerging technologies will ensure the system's continued effectiveness in saving lives and meeting the evolving needs of the healthcare sector.

14. References

Healthcare Organizations:

Consult with local or national healthcare organizations, hospitals, and blood banks to understand their existing systems and challenges.
Discuss potential features and functionalities with healthcare professionals, administrators, and IT experts.

Case Studies and Research Papers:

Read case studies and research papers related to blood bank management systems. Academic institutions and healthcare research organizations often publish valuable insights and findings.

Existing Blood Bank Systems:

Analyze existing blood bank management systems to identify their strengths and weaknesses.
Look for open-source projects or commercial systems and study their features

User Feedback:

Collect feedback from potential users, including blood donors, healthcare professionals, and administrators.
Understand their pain points and requirements to incorporate user-centric design and functionality.