

PROJECT REPORT

On

HEMOHUB- A LIFEFLOW MANAGEMENT

By

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Submitted to the

DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS (MCA)

Under the guidance of

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FACULTY OF SCIENCE & HUMANITIES
(A Place for Transformation)
Ramapuram, Chennai.

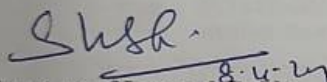


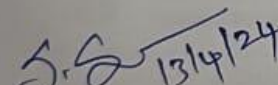
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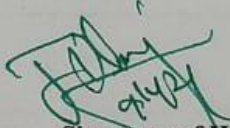
BONAFIDE CERTIFICATE


Certified that this project report titled **"HEMOHUB- A LIFEFLOW MANAGEMENT"** is the bonafide work of **MOHAMED IRFAN.M (RA2232241020068)** who carried out the **"PCA20P03L – Project Work "** done under my supervision.

Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


Signature of Internal Guide


Signature of Internal Examiner


Signature of Head of the Department

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Professor & Head
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Ramapuram Campus, Chennai

Signature of External Examiner

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The terms and conditions of the internship with the Company are set forth below:

1. Subject to acceptance of the terms and conditions contained herein, the project and responsibilities during the Term will be determined by the supervisor assigned to the students for the duration of the internship.
2. Students during the term which shall be subject to Regular Attendance from Monday to Saturday, Good Performance, and Completion of the Tasks assigned during the internship to the satisfaction of the Company.
3. The timings will be from 10:00 AM to 6:00 PM, Monday to Saturday. Students shall bring the Required documents on the Date of Joining.
4. It will be considered on a case-by-case basis and the stipend will be adjusted appropriately if the student is unable to attend the office regularly due to exams, placement drives, or placement training.
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2. Latest Mark Sheet
3. Address Proof of Present Location of Students – Any Government Recognized Document.

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We are excited to have you join our energetic team at Pantech. If you have any questions, please email or call us.



Authorized Signatory

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COMPLETION CERTIFICATE

This is to acknowledge that student **MOHAMED IRFAN M** from “**SRM ARTS AND SCIENCE COLLEGE**” has completed **Project** on the **Title** of “**HEMOHUB- A LIFELINE MANAGEMENT**” at our concern from **DEC 2023** to **MAR 2024**.

For Pantech e learning,.



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ABSTRACT

HEMOHUB- A lifeflow management is a web-based application. The entire project was developed with distributed client server computing technology in mind. Through this application anyone interested in donating blood can register through this website. Moreover, any general patients can request blood through this site. Admin is the main authority who can do addition, deletion and modification if required. The project has been planned to be having the view of distributed architecture with centralized storage of the database. This website has been developed using the HTML, CSS, JavaScript for the Front End and for backend python programming language.

Hemohub management system is a critical component of healthcare infrastructure, providing a centralized platform for the efficient management of blood donation, testing, storage, and distribution processes. This system encompasses various modules such as donor registration, blood collection scheduling, inventory management, blood typing and managing.

By leveraging technology, hemohub management systems enhance operational efficiency, reduce errors, and improve blood supply chain management, ultimately contributing to the need.

ACKNOWLEDGEMENT

I extend my sincere gratitude to the Chancellor **Dr. T.R. PACHAMUTHU** and to Chairman **Dr. R. SHIVAKUMAR** of SRM Institute of Science and Technology, Ramapuram and Trichy campuses for providing me the opportunity to pursue the MCA degree at this University.

I express my sincere gratitude to **Maj. Dr. M. VENKATARAMANAN Dean(S&H)**, SRM IST, Ramapuram for his support and encouragement for the successful completion of the project.

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I find no word to express profound gratitude to my guide **Dr.S.UMA SHANKARI MCA., M.Phil., Ph.D., NET., SET., M.Sc Associate Professor** Department of Computer Science and Applications (MCA), SRM IST Ramapuram.

I thank the almighty who has made this possible. Finally, I thank my beloved family members and friends for their motivation, encouragement and cooperation in all aspects which led me to the completion of this project.

**MOHAMED IRFAN M
(RA2232241020068)**

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CHAPTER 1

INTRODUCTION

1.1 PROJECT DESCRIPTION

The primary goal of this paper is to blood various techniques for the early-stage blood requirements of multiple types of blood groups from human. The assessment of the vascular network in the human blood is a crucial diagnostic factor for surviving. Segmentation of this network in challenges due to variable blood group, relatively low contrast, and the potential presence of pathologies like microaneurysms and hemorrhages. The project introduces an efficient approach for bloods. This analysis plays a pivotal role in the early requirements of blood such as A positive, B positive through blood vessels. The inherent characteristics of retinal images make the blood vessel detection process intricate. In this project, we propose a novel algorithm for the effective detection of blood, leveraging the green channel for accurate blood extraction.

Hemo-hub management is a browser-based system that is designed to store, process, retrieve and analyze blood related information. This project aims at maintaining all the information pertaining to blood donors, different blood group available in this blood bank and help them to manage in a better way. This website provides the user or the donors a secured environment by accepting the log in ID's and password from the user. This application allows the user to store the donor details as soon as the donor is registered. The admin will check the donor registered details if only he/ she is capable for donating the blood then only the donor can donate the blood at their registered centers. Before that the admin will send message or notification to donor registered mobile number or email.

Blood transfusion safety remains an important public health concern in Oman. The availability of blood products of all blood types and the provision of its safety ensure public trust of its excellent healthcare system. However, lack of availability of these blood products and provision of unsafe blood products still impacts morbidity and mortality in the Sultanate. Through the use of online blood bank management system, blood transfusion safety is expected to be enhanced or improved. Risks on improper blood donors' documentation, and misplaced records can be minimized or totally avoided.

Blood Management is a system that is designed to store and process, retrieve and related information. This project aims at maintaining all the information pertaining to blood donors, different blood group available in this blood bank and help them to manage in a better way. This website provides the user or the donors a secured environment by accepting the log in ID's and password from the user. This application allows the user to store the donor details as soon as the donor is registered. The admin will check the donor registered details if only he/ she is capable for donating the blood then only the donor can donate the blood at their registered centers...

CHAPTER 2

WORKING ENVIRONMENT

2.1 HARDWARE REQUIREMENT:

- Operating system: windows 11
- Processor: Intel Core i5 (12th Gen) Processor
- Hard Drive: 1TB.
- Memory (RAM): 8 GB.

2.2 SOFTWARE REQUIREMENT:

- Python
- Windows OS
- Minimum :4 GB RAM

2.3 SYSTEM SOFTWARE

- The requirements of blood in terms of searching is difficult and this process would probably start all the blood required such as A positive, B positive feature extraction to locate needy, regions and possibly areas with certain supply.
- The complexity and variability of blood, coupled with the subtlety of early required manifestations, require advanced computational techniques such as python and using Django framework.

2.3.1 Fundamentals of Blood Management

- The blood circulates all over the body which has a similar appearance to some subject unusually a physical illness person.
- The word blood is a lifeline in the all living things sense of variation blood figure such as A positive, B positive, AB positive, A negative, etc.

2.3.2 FEATURES

- An important feature of blood management approach is that it affords us substantial flexibility to incorporate additional blood information. Specifically, we extend the contour-based recognition method and propose a new hybrid recognition method which exploits shape tokens and features as figure out the basic need of blood
- Donor and Blood seeker are largely orthogonal, where the former corresponds to shape boundaries to this project.
- Here, each learned combination can comprise features that are either 1) admin, 2) donor, 3) blood seeker. The number and types of features to be combined together are learned automatically from admin to send and receive information both while need of blood and make faster to the through communication.

2.3.3 BLOOD MANAGEMENT

- Blood bank management is process blood seeker seeks for a category of blood from donor
- In its short history, it has been applied to practically every type of bloods with varying degree of success.
- The inherent subjective appeal of pictorial displays attracts perhaps a disproportionate amount of attention from the scientists and also from the layman.
- Digital image processing like other glamour fields, suffers from myths, mis-connections, mis-understandings and mis-information.
- It is vast umbrella under which fall diverse aspect of optics, electronics, mathematics, photography graphics and computer technology. It is truly multidisciplinary endeavor ploughed with imprecise jargon.
- Several factors combine to indicate a lively future for blood donors processing.
- A major factor is the declining cost of computer equipment. Several new technological trends promise to further promote digital image processing.
- These include parallel processing mode practical by low cost microprocessors, and the use of charge coupled devices (CCDs) for digitizing, storage during processing and display and large low cost of image storage arrays.

CHAPTER 3

SYSTEM ANALYSIS

3.1 FEASIBILITY STUDY

The purpose of the feasibility study is to assess if the project is feasible that is, whether it can be executed effectively and conveniently from an operational, technical, economic, and organizational perspective.

3.1.1 ECONOMIC FEASIBILITY

The project was created exclusively with open-source software and libraries. The creators of these libraries have all made them freely accessible online. As a result, there are no costs associated with project development.

3.1.2 Stage 1: DONAR PROCESSING

In this stage, the identification of objects in and this process would probably start with image processing techniques such as noise removal, followed by (low-level) feature extraction to locate lines, regions and possibly areas with certain textures

- The clever bit is to interpret collections of these shapes as single objects, e.g. cars on a road, boxes on a conveyor belt or cancerous cells on a microscope slide.
- One reason this is an object can appear very different when viewed from different angles or under different lighting.
- Another problem is deciding what features belong to what object and which are shown.
- The human visual system performs these tasks mostly unconsciously but a computer require skillful programming and lots of processing power to approach human performance.

3.1.3 Stage 2: OPERATIONAL FEASIBILITY

This is a feasible operating concept that could help prediction of diseases also mention any manual intervention if needed during the process, followed by complexity analysis, volume of transactions, technology landscape, development efforts, data size and information flow. Additionally, consider the process standardization or do re-engineering if required.

3.1.4 Process Level

- Create a process document that contains the high-level steps or process map.
- Define the most common errors and process flows to fix or escalate these errors.
- Create a business application decision and provide details.

3.1.5 Metrics

- Define schedule details to make sure it follows the standard set timings as per daily, weekly or monthly.
- Define whether the process must be completed by a standard set timing or date.
- Mention how long it takes to rectify an error.
- The project was created exclusively with open-source software and libraries.
- The creators of these libraries have all made them freely accessible online.
- there are no costs associated with project development

3.1.6 Applications & Data

- **Acquisition** is to acquire a image. To do so requires an capability to digitize the signal produced by the sensor.
- **Enhancement** is among the simplest and most appealing areas of. Basically, the idea behind enhancement techniques is to bring out detail that is obscured, or simply to highlight certain features of interesting an image.
- **Blood restoration** is an area that also deals with improving the appearance of an image., which is subjective, restoration is objective, in the sense that restoration techniques tend to based on mathematical
- Update the test environment that mirrors the live system and mention the access to thesame inputs and outputs.

3.2 EXISTING SYSTEM

- In the context of analysis, employing edge detection methods and segmentation techniques, such as simple and global thresholding algorithms, are crucial steps. Edge detection methods help identify boundaries and prominent features in the aiding in the localization of structures like blood vessels.

3.3 DRAWBACKS OF EXISTING SYSTEM

- The method faces challenges due to intrinsic characteristics of making the detection of blood complex process.
- Poor edge detection poses a limitation in accurately identifying boundaries and features.

3.4 PROPOSED SYSTEM

- The proposed method for analysis focuses on the detection of through a multi-step approach.
- It leverages template-based edge enhancement to accentuate edges in the blood
- Morphological filtering is employed to further refine the image, improving the overall quality of relevant structures.
- This method combines various image processing techniques to enhance diagnostic capabilities and contribute to early requirements.

3.5 BENEFITS OF PROPOSED SYSTEM

- Accurate Donor Data
- Enhanced Efficiency
- Low Sensitivity to Noise
- Early Alert

3.6 SCOPE OF THE PROJECT

- The main goal is analysis blood requirements focuses on the detection of blood types through a multi-step approach.
- Segmentation of this network in poses challenges due to variable blood types, relatively low contrast, and the potential presence of pathologies like A positive and B Positive,etc
- Implementing predictive analytics algorithms to forecast demand based on historical data, seasonal trends, and local events can help optimize inventory levels and prevent shortages

- Integrating blood bank management systems with electronic health records can facilitate seamless communication between healthcare providers, ensuring accurate patient information and improving the efficiency of transfusion workflows.
- Establishing remote blood collection units in underserved areas or mobile units that can travel to community events can increase accessibility to blood donation services and widen the donor pool.
- Implementing comprehensive training and education programs for blood bank staff and healthcare professionals to ensure adherence to best practices, enhance transfusion safety, and promote continuous quality improvement.
- Integrating blood bank management systems with electronic health records can facilitate seamless communication between healthcare providers, ensuring accurate patient information and improving the efficiency of transfusion workflows.
- By leveraging technology, blood bank management systems enhance operational efficiency, reduce errors, and improve blood supply chain management, ultimately contributing to the provision of safe and timely blood transfusions for patients in need
- Future developers may extend this project to include the generation of donation slips for donors. In addition, various function can be added.
- Notification through SMS and email.
- The need for blood is increasing along with its importance for treating various medical conditions. There are three main components of blood; plasma, platelet, and RBC/WBC

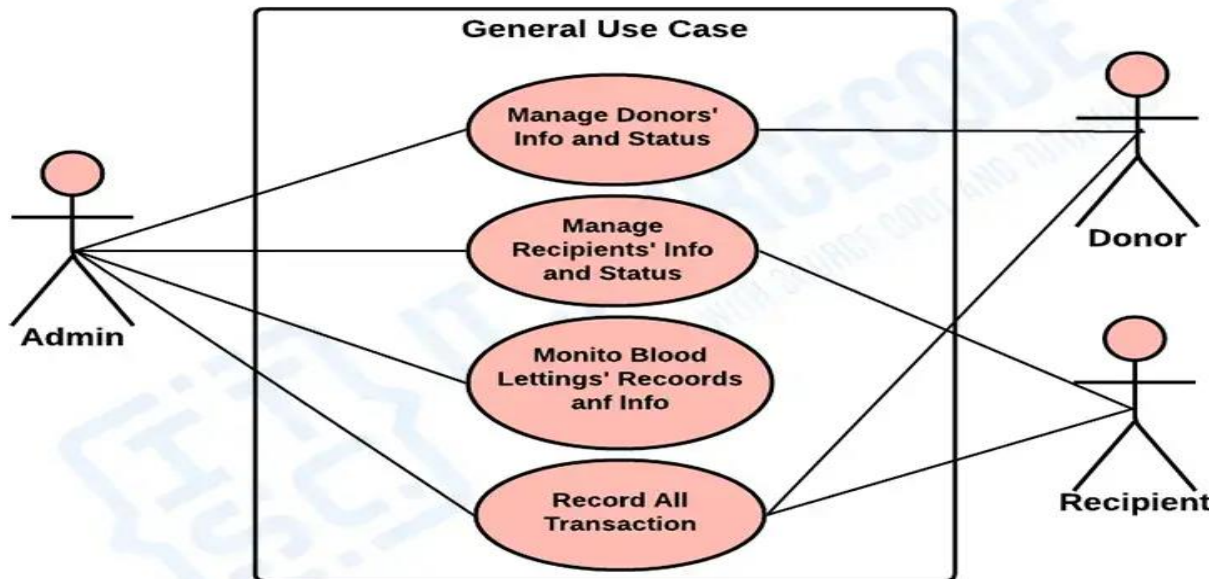
CHAPTER 4

SYSTEM DESIGN

4.1 USE CASE DIAGRAM

Use-case diagrams describe the high-level functions and scope of a system. These diagrams also identify the interactions between the system and its actors. The use cases and actors in use-case diagrams describe what the system does and how the actors use it, but not how the system operates internally. Use-case diagrams illustrate and define the context and requirements of either an entire system or the important parts of the system. You can model a complex system with a single usecase diagram, or create many use-case diagrams to model the components of the system. You would typically develop use-case diagrams in the early phases of a project and refer to them throughout the development.

BLOOD BANK MANAGEMENT SYSTEM

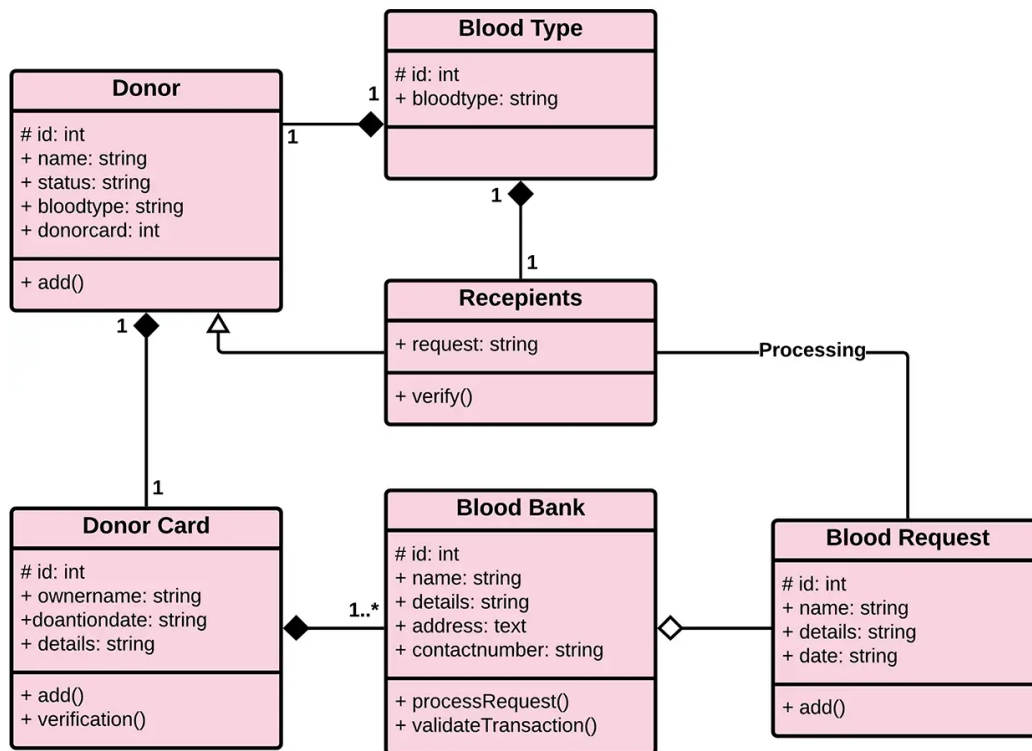


USE CASE DIAGRAM

4.1.1 USE CASE DIAGRAM

4.2 CLASS DIAGRAM

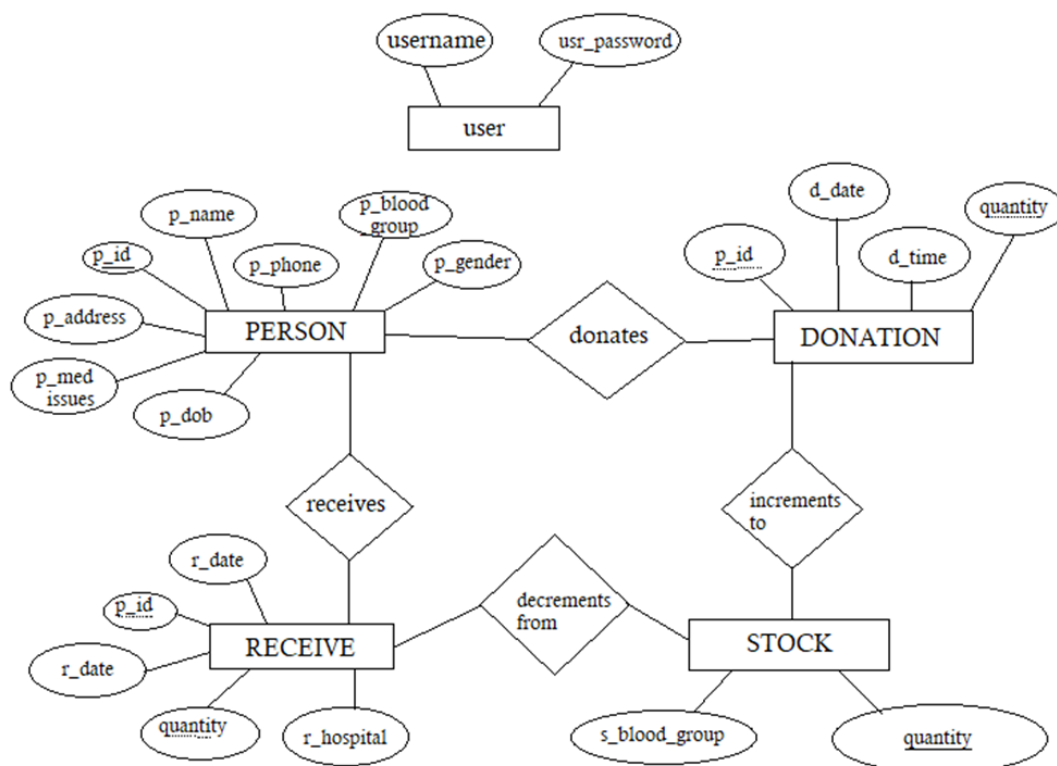
The class diagram depicts a static view of an application. It represents the types of objects residing in the system and the relationships between them. A class consists of its objects, and also it may inherit from other classes. A class diagram is used to visualize, describe, document various different aspects of the system, and also construct executable software code. It shows the attributes, classes, functions, and relationships to give an overview of the software system.



4.2.1 CLASS DIAGRAM

4.3 ARCHITECTURE DIAGRAM

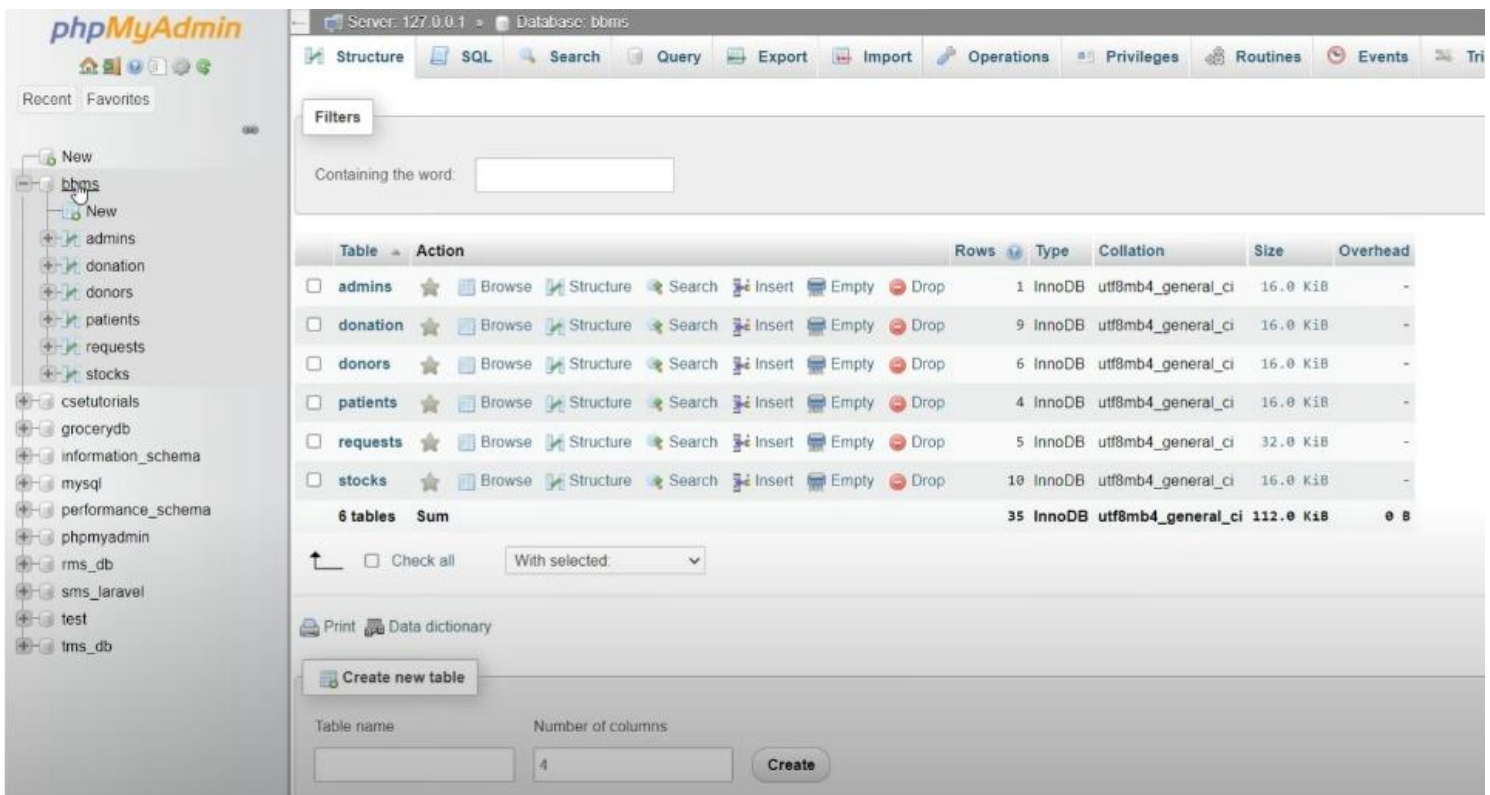
An architecture diagram is a visual representation of all the elements that make up part, or all, of a system. Above all, it helps the engineers, designers, stakeholders and anyone else involved in the project understand a system or app's layout. This diagram gives a top-level view of a software's structure. To elaborate, it generally includes various components that interact with each other and how the software interacts with external databases and servers. It's useful for explaining software to clients and stakeholders; and assessing the impact of adding new features or upgrading, replacing, or merging existing applications.



4.3.1 ARCHITECTURE DIAGRAM

4.4 DATABASE DESIGN

Database design is the process of designing the structure of a database system, including its tables, columns, relationships, constraints, and indexes. The goal of database design is to create a database that is efficient, scalable, secure, and easy to use. A well-designed database is essential for the proper functioning of a software system. It provides a structured and organized way to store and retrieve data, and enables efficient data processing and analysis.



4.4.1 DATA DESIGN

ADMIN DATABASE:

phpMyAdmin

Recent Favorites

New

bbms

New

admins

donation

donors

patients

requests

stocks

csetutorials

grocerydb

information_schema

mysql

performance_schema

phpmyadmin

rms_db

sms_laravel

test

tms_db

Server: 127.0.0.1 Database: bbms Table: admins

Browse Structure SQL Search Insert Export Import Privileges Operations Triggers

Showing rows 0 - 0 (1 total, Query took 0.0002 seconds)

SELECT * FROM `admins`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all Number of rows: 25 Filter rows: Search this table

Extra options

id name email password mobile

1 Admin User admin@gmail.com admin123 8888888888

Check all With selected: Edit Copy Delete Export

Show all Number of rows: 25 Filter rows: Search this table

Query results operations

Print Copy to clipboard Export Display chart Create view

DONATION DATABASE:

phpMyAdmin

Server: 127.0.0.1 > Database: bbms > Table: donation

Showing rows 0 - 8 (9 total, Query took 0.0002 seconds.)

SELECT * FROM `donation`

Number of rows: 25 Filter rows: Search this table Sort by key: None

				id	donor_id	blood_group	no_units	disease	status
<input type="checkbox"/>	Edit	Copy	Delete	301	101	B+	20	Nothing	1
<input type="checkbox"/>	Edit	Copy	Delete	302	102	AB+	15	Nothing	1
<input type="checkbox"/>	Edit	Copy	Delete	1005	101	B+	5	No disease	1
<input type="checkbox"/>	Edit	Copy	Delete	1006	104	A	10	Noo	2
<input type="checkbox"/>	Edit	Copy	Delete	1008	104	A	5	No nothing	1
<input type="checkbox"/>	Edit	Copy	Delete	1009	105	O+	18	I do not have any disease	1
<input type="checkbox"/>	Edit	Copy	Delete	1010	105	O+	5	Nothing	1
<input type="checkbox"/>	Edit	Copy	Delete	1018	108	A-	24	Nothing	1
<input type="checkbox"/>	Edit	Copy	Delete	1019	109	B	30	Nothing	1

PATIENT DATABASE:

phpMyAdmin

Recent Favorites

- New
- bbms
 - New
 - admins
 - donation
 - donors
 - patients
 - requests
 - stocks
- csetutorials
- grocerydb
- information_schema
- mysql
- performance_schema
- phpmyadmin
- rms_db
- sms_laravel
- test
- tms_db

Server: 127.0.0.1 Database: bbms Table: patients

Browse Structure SQL Search Insert Export Import Privileges Operations Triggers

Showing rows 0 - 3 (4 total, Query took 0.0002 seconds)

`SELECT * FROM `patients``

☐ Profiling [\[Edit inline \]](#) [\[Edit \]](#) [\[Explain SQL \]](#) [\[Create PHP code \]](#) [\[Refresh \]](#)

☐ Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

Extra options

				id	name	email	password	mobile
<input type="checkbox"/>				501	Patient Name 1	patient1@gmail.com	12345	2147483647
<input type="checkbox"/>				503	Patient Name 2	patient2@gmail.com	12345	2147483647
<input type="checkbox"/>				505	Patient Name 3	patient3@gmail.com	12345	9898989898
<input type="checkbox"/>				506	Patient Name 4	patient4@gmail.com	12345	7777777777

☐ Check all With selected: Edit Copy Delete Export

☐ Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

STOCK DATABASE:

phpMyAdmin

Recent Favorites

New

bbms

New

admins

donation

donors

patients

requests

stocks

csetutorials

grocerydb

information_schema

mysql

performance_schema

phpmyadmin

rms_db

sms_laravel

test

tms_db

Server: 127.0.0.1 > Database: bbms > Table: stocks

Browse

Structure

SQL

Search

Insert

Export

Import

Privileges

Operations

Triggers

Showing rows 0 - 9 (10 total, Query took 0.0002 seconds.)

SELECT * FROM `stocks`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all

Number of rows: 25

Filter rows: Search this table

Sort by key: None

Extra options

Edit

Copy

Delete

sno

blood_group

stock

Edit

Copy

Delete

1

A

5

Edit

Copy

Delete

2

A+

11

Edit

Copy

Delete

3

A-

22

Edit

Copy

Delete

4

B

30

Edit

Copy

Delete

5

B+

15

Edit

Copy

Delete

6

B-

0

Edit

Copy

Delete

7

AB+

15

Edit

Copy

Delete

8

AB-

0

Edit

Copy

Delete

9

O+

23

Edit

Copy

Delete

10

O-

0

CHAPTER 5

PROJECT DESCRIPTION

5.1 OBJECTIVE

The primary objective of this project is to detect the requirements of blood concepts. The system is equipped with a user-friendly graphical interface that facilitates the input heir analysis, and subsequent classification of the output. The methodology employed involves a detailed illustration of plane separation, specifically transferring the blood through physically, as well as the application of transforming.

5.2 MODULE DESCRIPTION

- Database Images
- Donar and Inventory Management
- Testing and Screening
- Reporting and Analytics
- User Management
- Alert Notification
- Integration
- Module Enhancement
- Implementation

5.2.1 DATABASE IMAGES

- A comprehensive database of blood requirements is essential for training and testing. These databases typically contain images obtained through various blood groups modalities such as blood types and meet the required donor make sure the future enhancement. Databases may include images from both healthy individuals and those with different stages of blood bank management.

5.2.2 DONOR AND INVENTORY MANAGEMENT

- Donor and inventory management techniques are applied to enhance the quality of blood images and remove any artifacts interfere with the ability to extract meaningful features. this steps may include image resizing, normalization, management, and contrast enhancement.

5.2.3 TESTING AND SCREENING

- Feature extraction is a crucial step where relevant features are extracted from website and friendly to user
- These features may include the presence of lesions, abnormalities, or specific terns indicative of . Traditional image processing techniques or handcrafted feature extraction methods may be employed here.

5.2.4 REPORTING AND ANALYTICS

- The blood bank management process from donor, admin, blood receiver
- This undergoes further processing through the layers of the neural network to extract higher-level features and make about the presence or absence of blood.

5.2.5 USER MANAGEMENT

- Within the architecture, feature extraction is an inherent process that occurs across multiple layers.
- Convolutional layers in the earn to extract hierarchical features from the input images. These features are increasingly abstract representations of image characteristics that are relevant for distinguishing between different classes of eye diseases.

5.2.6 ALERTS AND NOTIFICATIONS

The architecture is designed to automatically learn and extract discriminative features from input retinal images through convolutional and pooling layers. These features are then fed into fully connected layers for classification. learns to differentiate between healthy and diseased based on the patterns and features it extracts during the training process.

5.2.7 INTERGRATION

The final stage involves classifying the input retinal image as either positive or negative for or any other early-stage eye disease. This classification is based on the output of the which assigns a probability score indicating the likelihood of the presence of the disease. A threshold may be applied to determine the final classification decision.

5.2.8 IMPLEMENTATION

Energy: It is a measure the homogeneousness of the image and can be calculated from the normalized COM. It is a suitable measure for detection of disorder in texture image.

5.2.9 MODULE ENHANCEMENT

- **Module:** blood gives a measure of complexity of the human complex textures tend to have higher entropy.

5.2.10 IMPLEMENTATION

- **Contrast:** Measures the local variations and texture of shadow depth of blood and contrast the blood circulation.
- **Correlation:** Measures the joint probability occurrence of the specified blood pairs.
- **Homogeneity :** Measures the closeness of the distribution of elements in the blood to diagonal.

CHAPTER 6

SYSTEM TESTING

6.1 TESTING DEFINITION

Testing is the main step of every software development before deploying the production software. RPA software has its own functionality of testing to test the codes, in which we can make our own test cases and check the efficiency of the code.

6.2 TESTING OBJECTIVE

Below are Some best testing methods:

- **Understand the requirements:** Before beginning, the main target of the testing team is to know the requirements of the automated process. This step is very important because the other steps will depend on it.
- **Code analysis:** The tester must analyze the code to understand the flow of processes.
- **Please select the right scenarios:** The tester must assure the customer about the software developed according to business needs.
- **Test cases and scripts:** In this step, various types of test cases with different outcomes will be needed in the origination of test scripts.
- **Testing the data:** Without testing the data, automation testing can give a faulty result. That's why it is necessary to have a clear view of understanding the data for successful testing.

- **Control Defects:** Defects are common in every testing. To manage defects, it should be written down by the tester, and it is essential to inform the developer's team about the defect.
- **Final Outcome:** When the steps mentioned above run successfully, it will give the outcome.

6.3 TYPES OF TESTING:

There are broadly two types of testing occurring in RPA:

1. **Browser Testing:** Testing the automated business process automated through the RPA tool itself.
2. **Business Component Testing:** Testing of the other business components through RPA tools.

6.3.1 CHALLENGES OF TESTING:

As every software needs to be tested before deployment, RPA bots must be tested before execution. We should keep in mind some points which are as follows:

- **Bot exceptions:** You should notice how the bots manage the software problems, page not loading problems and exception problems, etc., successfully.
- **Integration Problem:** Integration occurs when bots cannot manage logs, firewalls, orchestrator issues, etc.
- **Bot Functionality:** Input/Output capabilities of the bot, stability, configuration, and security validation must be resolved.

- **Flow error:** The bot can handle the data, and it should be able to inform any exceptions which occur during the execution time. Most importantly, the bot should begin recovery from the failure.
- **Environment exception:** The bot is also able to manage environmental changes such as screen resolutions, version change, etc., but they are not able to self-diagnose and recover from the exceptions.

STEPS OF TESTING:

The basic steps for testing are described below:

Step 1: Testing in using UiPath Studio is straightforward. The tester should test the process before deploying. Here, developers can also test the process apart from the tester. First, the tester or developer must select the process they want to test. Then they have to right-click on the Main.xml under the Project Panel, a list of options will be opened, and they have to select the Create Test Case option.

Step 2: After creating the test case, they will see the structure of the test case. There are three sections, and they are:

- **Given section:** Put the input for testing the process.
- **When section:** Invoke the process on which the testing will be done.
- **Then section:** In this section, verification will happen to get the required outcome.

Step 3: After executing the test cases, we get the outcome that shows the percentage of the activities from the workflow covered by the Testcase.

Use Case of Testing:

Testing in Studio is easy to test the code before deploying. To test every workflow in the project and make code more efficient, a developer goes with the UiPath studio's testing. UiPath testing can be tested by a developer when developing the code as it won't take much time using testing

suits. Below are the two images. The first one is a panel where we select our workflow to test. In the second one, we get the framework to see the 3 steps.

- **Given:** In this section, we apply input to test our code.
- **When:** In this section, we invoke the code on which testing to be done.
- **Then:** This section applies our required conditions to get the required result.

ADVANTAGES OF TESTING:

Testing is one of the main objectives of any software development. Software or product development can be fast if testing of the product is fast. Below listed are certain advantages of employing this Testing onboard:

- Using technology for testing, it is possible to do many test automation, as the tool can capture repetitive IT system interactions.
- It reduces the processing time by 40 percent.
- It is preferred for its smooth life cycle and easy adaptability.
- We can test our web portal data by scraping or scanning functionality.
- It increases the product's quality easily and helps in product development to develop fast.
- It gives great data accuracy and saves Time-to-market time.
- With the involvement of RPA, the User Acceptance Test (UAT) can be more productive and Accurate.
- It reduces errors that occur during manual testing.
- It supports the output of huge knowledge testing that enhances the general quality and maintenance of the top product even when it hits the market.

Benefits of PLASMA

PLASMA has use-cases in every blood department, from account receivable tracking to ensure on time payment, to federal and local COVID-19 compliance documentation.

Health Care	New employee on-boarding	Employee termination documentation	Short-term disability and sick leave
Regional HUB	Ar tracking to ensure on time payment	Invoice processing/duplicate review	Vendor verification/inactivate unused vendors
Hospital	New user setup	Remote work setup (wifi, vpn, hardware registration)	Inventory tracking
Market	Sales campaign email management	Outreach campaigns	CRM automation/address cleansing
Customer Service	Order processing	Customer self-service	Chatbot enablement
Others	Federal and local covid-19 regulatory compliance documentation	Data collection and management	Inventory management

Advantages does bring to a environment

- The pressures of normal business operations have only been magnified by the current climate. Many companies have experienced significant revenue reductions and are under pressure to curb costs and do more with fewer resources to survive. RPA can help businesses address the following business needs:

- **Cost savings:** projects can generate significant cost savings. ROI is realized near instantaneously, offsetting the upfront investment. A smaller implementation with 10 bots or fewer can be implemented relatively inexpensively and within a short period of time. RPA can increase the quantity and quality of work product, while allowing human capital
- resources to shift to higher-value tasks or be redeployed to other parts of the business—all contributing to the economics of automation. In the current climate, this is imperative.
- **Speed:** It can slash the time spent on manual tasks by orders of magnitude—an essential need during the pandemic when lost time can translate to loss of life, as is the case for healthcare providers and manufacturers of critical medical supplies.
- **Productivity:** As revenues have dropped, many companies have been forced to lay off or furlough workers. Maintaining productivity with fewer resources is a must. By automating parts of the workforce's daily activities, staff can instead focus on activities that require human problem solving.
- **Going virtual:** With all nonessential businesses forced to cease in-person work and the timeline until a vaccine is available still likely one year to 18 months away, businesses must facilitate highly effective remote work as soon as possible. can be used to expedite the setup process, ensuring employees have access to appropriate Wi-Fi at home and are registered for new equipment at home offices.
- **Business continuity:** In some cases, automation can protect staff's physical health by limiting exposure. For example, essential businesses are using bots to evaluate each employee's current health and COVID-19 risk. Based on the survey responses it helps determine each day if the person is low risk enough to go into work. This use of RPA could become helpful when parts of the country look toward a phased reopening and want to prevent widespread infection in the workplace.
- **Accuracy:** allows you to eliminate the human margin of error, which in the case of repetitive tasks is set between 5% and 10%. Improved accuracy and quality of work .

CHAPTER 7

CONCLUSION

7.1 SUMMARY

Based on results, this study concluded that online blood bank management system is much better than the manual system. The findings showed that users prefer to use online blood bank management system rather than the manual system because it offers many advantages and benefits that lead to its effectiveness, and efficiency. Because of the increased confidence on the users on the system, it can be concluded that the online blood bank management system enhances blood transfusion safety since it provides better ways of handling the various processes in blood bank.

7.2 FUTURE ENHANCEMENTS

The blood management system has been experimentally proven to work satisfactorily by developing web applications and the system can be by donor and user etc We learned many skills such as database modelling, other web tools that we use for this project and being able to work together as a team during this project . The demo patient, donor and manager tested successfully on our system to find a donor, blood bank and request them to donate blood. Thus a blood management system is successfully developed ,implemented and tested..

- **Predictive Analytics:** Implementing predictive analytics algorithms to forecast demand based on historical data, seasonal trends, and local events can help optimize inventory levels and prevent shortages.
- **Mobile App Integration:** Developing a user-friendly mobile app for donors to schedule appointments, receive notifications about donation drives, and track their donation history can encourage regular donations and improve donor engagement.
- **Blockchain Technology:** Leveraging blockchain technology to enhance the traceability and security of blood transfusion processes, ensuring the integrity of donor information and reducing the risk of errors or fraudulent activities.
- **Automated Blood Typing and Crossmatching:** Introducing automated systems for blood typing and crossmatching can streamline the compatibility testing process, reducing turnaround time and enhancing patient safety.
- **Remote Blood Collection Units:** Establishing remote blood collection units in underserved areas or mobile units that can travel to community events can increase accessibility to blood donation services and widen the donor pool.
- **Integration with Electronic Health Records (EHR):** Integrating blood bank management systems with electronic health records can facilitate seamless communication between healthcare providers, ensuring accurate patient information and improving the efficiency of transfusion workflows.
- **Training and Education Programs:** Implementing comprehensive training and education programs for blood bank staff and healthcare professionals to ensure adherence to best practices, enhance transfusion.

Future steps of blood hub management:

Collection of data:

collection of data is to acquire a from patients. To do so requires an is the capability to digitize the signal produced by the sensor. The sensor could be monochrome or color camera that produces an entire of the problem domain every 1/30 sec. the image sensor could also be line scan camera that produces a single image line at a time. In this case, the objects motion past the line.

Process the data:

Data produces a approximate of user. If the output of the camera or other imaging sensor is not in digital form, an analog to digital converter digitizes it. The nature of the sensor and the image it produces are determined by the application.

Blood enhancement:

Blood enhancement is among the simplest and most appealing areas of processing. Basically, the idea behind enhancement techniques is to bring out detail that is obscured, or simply to highlight certain features of interesting. A familiar example of enhancement is when we increase the contrast of an blood because “it reaches the correct the patient.” It is important to keep in mind that enhancement is a very subjective area of blood hub management.

CHAPTER 8

APPENDIX

8.1.1 SCREENSHOTS (LOGIN PAGE)

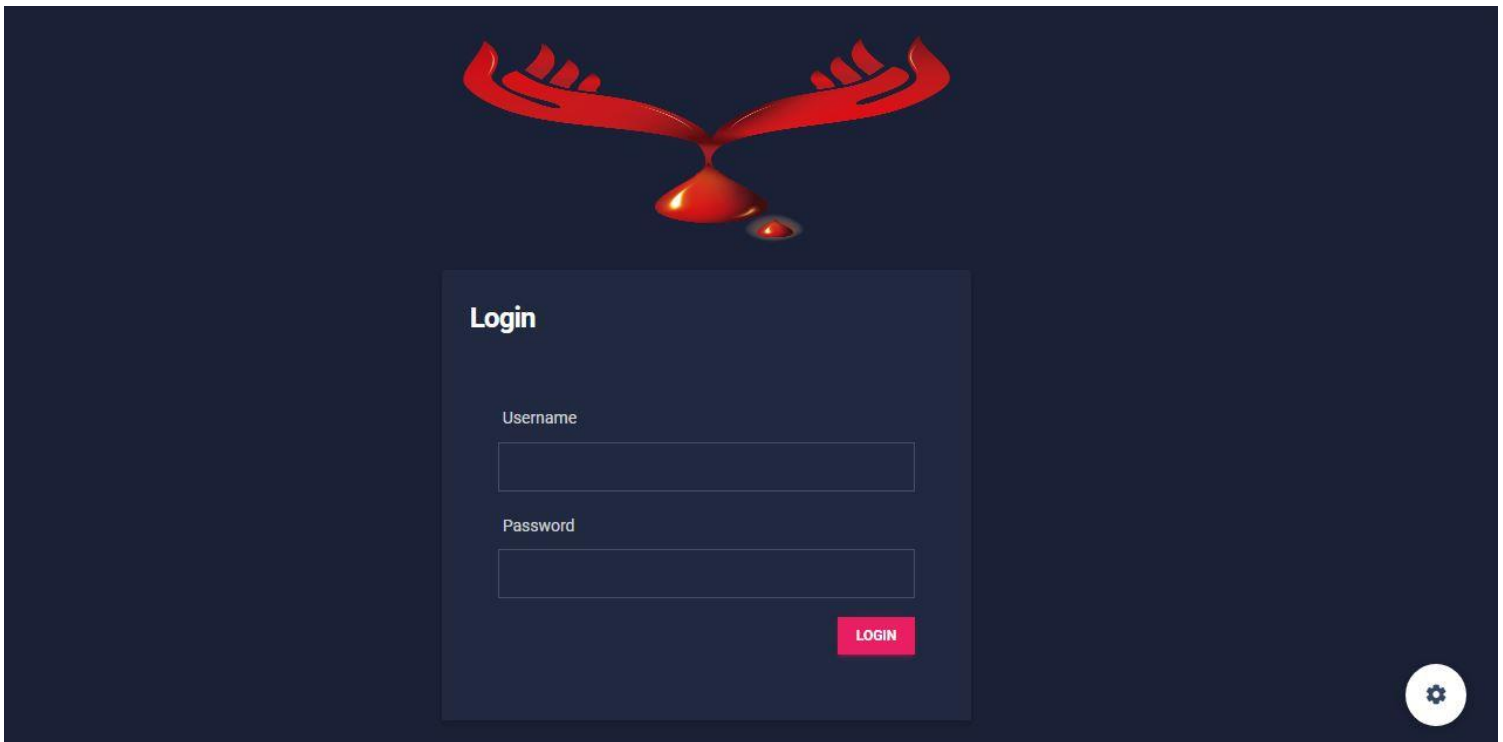


Fig 8.1.1

8.1.2 DASHBOARD

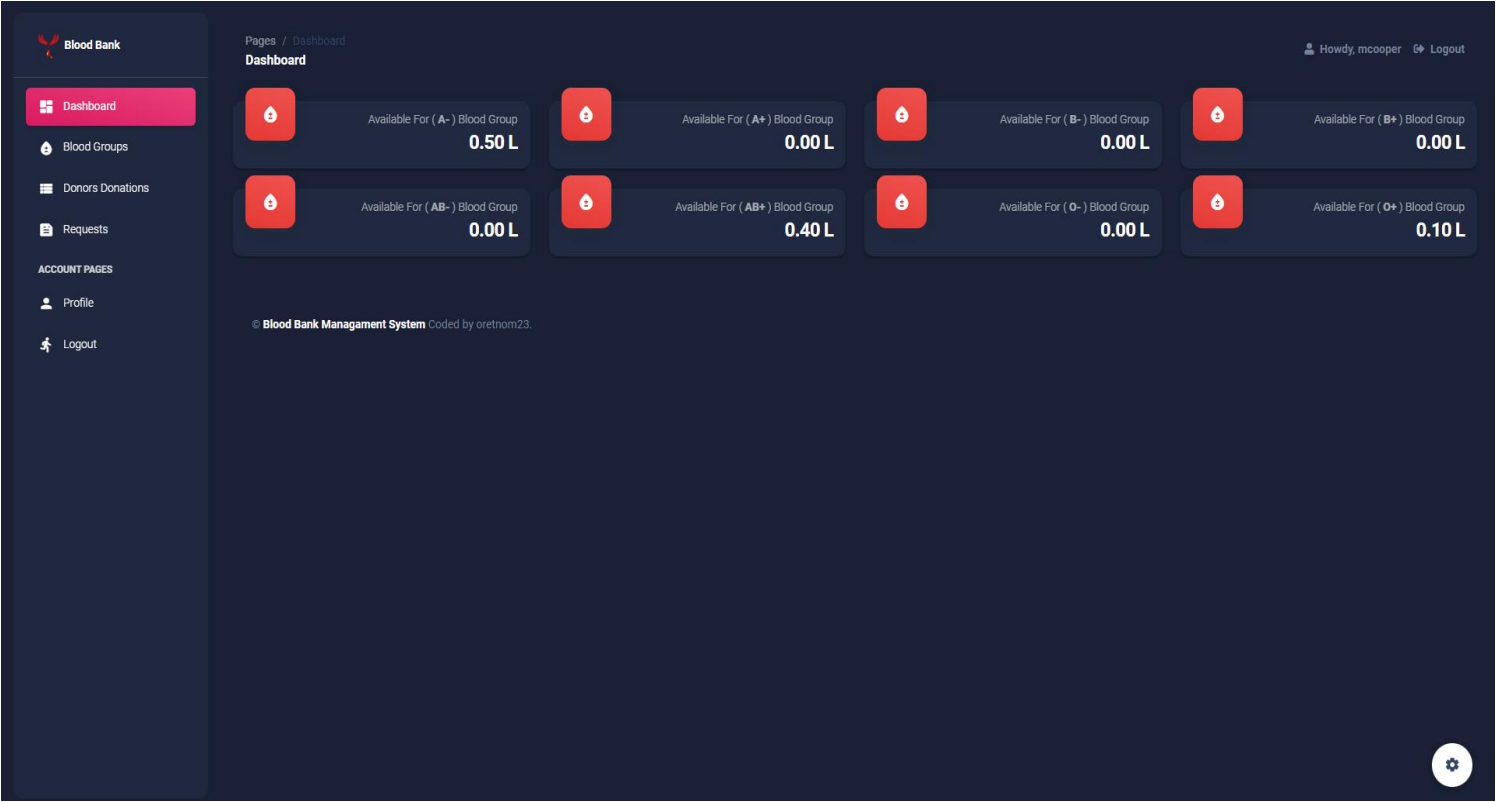
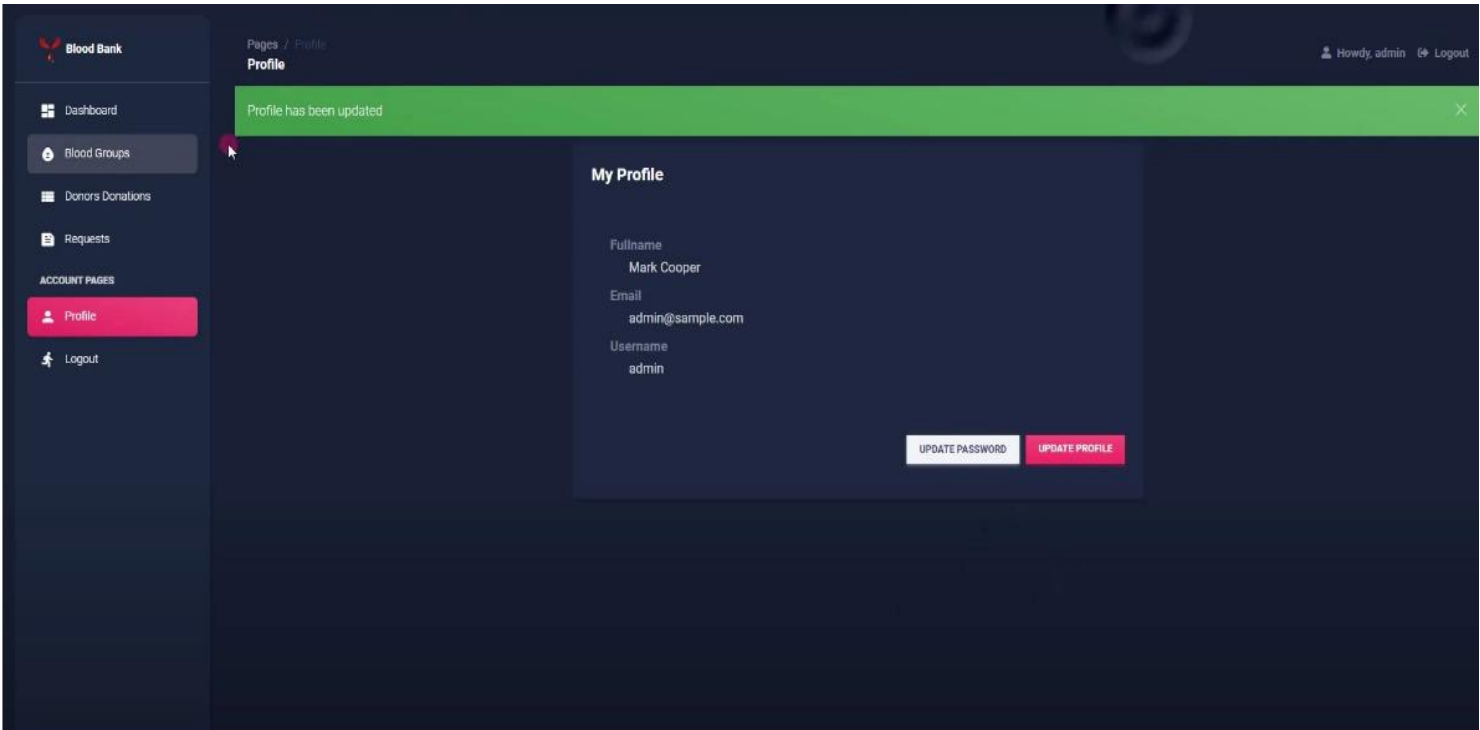
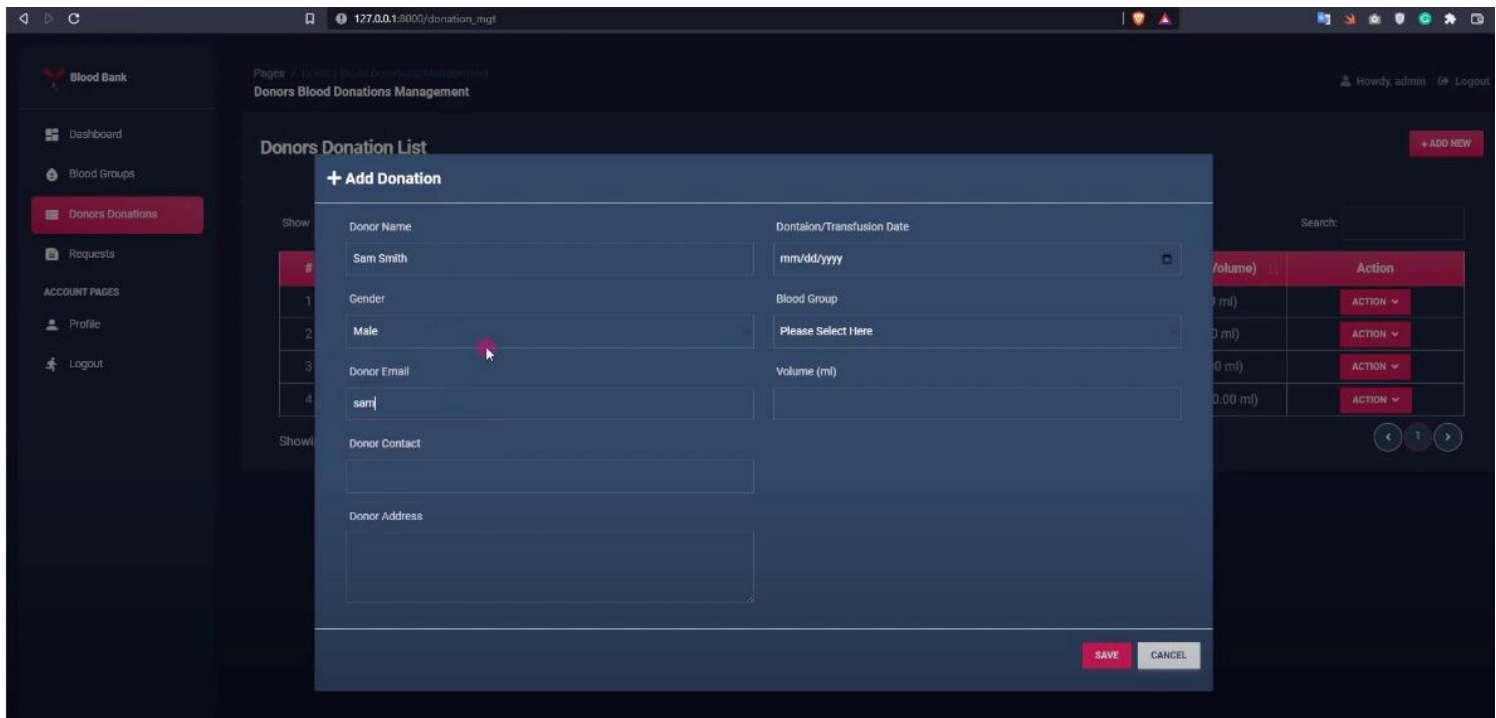


Fig 8.1.2


ADDING A PROFILE:



BLOOD DONATION PROCESS



BLOOD GROUP LIST

 Blood Bank

Dashboard

Blood Groups

Donors Donations

Requests

ACCOUNT PAGES

Profile

Logout

Pages / Blood Group Management

Blood Group Management

Howdy, admin Logout

Blood Group List

ADD NEW

Show 10 entries

Search:

#	Date/Time	Name	Available	Status	Action
1	2022-04-02 01:38 PM	A-	0.50 L	ACTIVE	<div>EDIT</div> <div>DELETE</div>
2	2022-04-02 01:44 PM	A+	0.00 L	ACTIVE	<div>EDIT</div> <div>DELETE</div>
3	2022-04-02 01:44 PM	B-	0.00 L	ACTIVE	<div>EDIT</div> <div>DELETE</div>
4	2022-04-02 01:44 PM	B+	0.00 L	ACTIVE	<div>EDIT</div> <div>DELETE</div>
5	2022-04-02 01:45 PM	AB-	0.00 L	ACTIVE	<div>EDIT</div> <div>DELETE</div>
6	2022-04-02 01:45 PM	AB+	0.40 L	ACTIVE	<div>EDIT</div> <div>DELETE</div>
7	2022-04-02 01:45 PM	O-	0.00 L	ACTIVE	<div>EDIT</div> <div>DELETE</div>
8	2022-04-02 01:45 PM	O+	0.10 L	ACTIVE	<div>EDIT</div> <div>DELETE</div>

Showing 1 to 8 of 8 entries

<

1

>




Fig 8.1.3

REQUESTING BLOOD

Blood Bank

Dashboard

Blood Groups

Donors Donations

Requests

ACCOUNT PAGES

Profile

Logout

Pages / Blood Requests Management

Blood Requests Management

Howdy, admin

Logout

Requests List

Show: 10 entries

#	DateTime
1	2022-04-02

Showing 1 to 1 of 1 entries

+ Add Request

Patient Name

Cynthia Anthony

Gender

Female

Blood Group

Sample +

Available: 850 ml

Volume (ml)

500

Physician Name

Sample Doctor, MD

Status

Pending

SAVE

CANCEL

+ ADD NEW

Search:

Physician	Blood Type (Volume)	Action
MD	O+ (350.00 ml)	ACTION

<

1

>

54

8.1.3 DONOR DETAILS

Blood Bank

Dashboard

Blood Groups

Donors Donations

Requests

ADMIN PAGES

Profile

Logout

Pages / Donors Blood Donations Management

Donors Blood Donations Management

Howdy, admin

Donors Donation List

+ ADD NEW

Show 10 entries

Search:

#	Transfusion	Blood Type (Volume)	Action
1	2022-03-30	A- (500.00 ml)	ACTION
2	2022-03-28	O+ (450.00 ml)	ACTION
3	2022-04-01	AB+ (400.00 ml)	ACTION

Showing 1 to 3 of 3 entries

View Donation Details

Donor's Name

Mark Cooper

Blood Group

A-

Donor's Gender

Male

Transfusion/Donation Date

Mar 30, 2022

Donor's Contact

09123456789

Volume

500.00 ml.

Donor's Email

mcooper@sample.com

Donor's Address

Donor's Sample Address

CLOSE

Fig 8.1.4

8.2 CODING SCREENSHOT

```
<!DOCTYPE html>

<html lang="en">

<head>

  <!-- Design by foolishdeveloper.com -->

  <title>Blood Bank</title>

  <link rel="preconnect" href="https://fonts.gstatic.com">

  <link      rel="stylesheet"      href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/5.15.4/css/all.min.css">

  <link
href="https://fonts.googleapis.com/css2?family=Poppins:wght@300;500;600&display=
swap" rel="stylesheet">

  <!--Stylesheet-->

  <style media="screen">

    *,
*:before,
*:after{

      padding: 0;

      margin: 0;

      box-sizing: border-box;

    }

    body{
```



```

background-color: #080710;
}

.background{
width: 430px;
height: 520px;
position: absolute;
transform: translate(-50%,-50%);
left: 50%;
top: 50%;
}

.background .shape{
height: 200px;
width: 200px;
position: absolute;
border-radius: 50%;
}

.shape:first-child{
background: linear-gradient(
#1845ad,
#23a2f6
);
left: -80px;
top: -80px;
}

```

```

}

.shape:last-child{

    background: linear-gradient(

        to right,

        #ff512f,

        #f09819

    );

    right: -30px;

    bottom: -80px;

}

form{

    height: 520px;

    width: 400px;

    background-color: rgba(255,255,255,0.13);

    position: absolute;

    transform: translate(-50%,-50%);

    top: 50%;

    left: 50%;

    border-radius: 10px;

    backdrop-filter: blur(10px);

    border: 2px solid rgba(255,255,255,0.1);

    box-shadow: 0 0 40px rgba(8,7,16,0.6);

    padding: 30px 35px;

```

```

}

form *{

    font-family: 'Poppins',sans-serif;

    color: #ffffff;

    letter-spacing: 0.5px;

    outline: none;

    border: none;

}

form h3{

    font-size: 32px;

    font-weight: 500;

    line-height: 42px;

    text-align: center;

}

label{

    display: block;

    margin-top: 30px;

    font-size: 16px;

    font-weight: 500;

}

input{

    display: block;

```

```
height: 50px;

width: 100%;

background-color: rgba(255,255,255,0.07);

border-radius: 3px;

padding: 0 10px;

margin-top: 8px;

font-size: 14px;

font-weight: 300;

}

::placeholder{

    color: #e5e5e5;

}

button{

    margin-top: 30px;

    width: 100%;

    background-color: #ffffff;

    color: #080710;

    padding: 10px 0;

    font-size: 18px;

    font-weight: 600;

    border-radius: 5px;

    cursor: pointer;

}
```

```
.social{  
  
    margin-top: 30px;  
  
    display: flex;  
  
}  
  
.social div{  
  
    background: red;  
  
    width: 150px;  
  
    border-radius: 3px;  
  
    padding: 5px 10px 10px 5px;  
  
    background-color: rgba(255,255,255,0.27);  
  
    color: #eaf0fb;  
  
    text-align: center;  
  
}  
  
.social div:hover{  
  
    background-color: rgba(255,255,255,0.47);  
  
}  
  
.social .fb{  
  
    margin-left: 25px;  
  
}  
  
.social i{  
  
    margin-right: 4px;  
  
}
```

```

</style>

</head>

<body>

<?php

include("admin/include/db.php");

?>

<div class="background">

    <div class="shape"></div>

    <div class="shape"></div>

</div>

<form    name="registration"    class="registartion-form"    method="POST"
action="query/reginsert.php">

    <h3>Register Here</h3>

    <input type="text" placeholder="Name" name="name" id="username" required>

    <input type="text" placeholder="Address"    name="address" id="password"
required>

    <input type="email" placeholder="Email" name="email" id="password" required>

    <input type="text" placeholder="Phone Number" name="number" id="password"
requied>

    <input    type="submit"    name="submit" class="submit"    value="Register"
style="background-color: green; width: 50%; margin-left: 70px"/>

</form>

</body>

</html>

```

Source code of blood request form:

```
<?php
?>

<!DOCTYPE html>

<html>

<head>

<body class="img js-fullheight" style="background-image: url(../imgs/n.jpg);">

<meta name="viewport" content="width=device-width, initial-scale=1">

<style>

* {

    box-sizing: border-box;

}

input[type=text], select, textarea {

    width: 100%;

    padding: 10px;

    border: 1px solid #ccc;

    border-radius: 40px;

    resize: vertical;

}

label {

    padding: 12px 12px 12px 0;

    display: inline-block;

}
```

CHAPTER 9

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