Project Report

1. INTRODUCTION

1.1 Project Overview

The aim of the project is to create a Web Application using Cloud technology that have the ability to manage the data of donors, receivers and the blood bank.

Plasma is a liquid-portion of the donor's blood. The Blood is drawn from one arm and sent through a highly developed machine that collects the plasma. The donor's red blood cells and platelets are then returned to the donor along with some saline.

Plasma is an important part of the treatment for many serious health diseases. Plasma therapy is a process where blood is drawn from the recovered patients in order to ratify antibodies that fight against infections.

During the COVID 19 crisis, the requirement of plasma became a high priority and the donor count has become low. Saving the donor information and helping the needy by notifying the project.

1.2 Purpose

- Plasma donation is a vital part of worldwide healthcare. Plasma is the liquid component of our blood that espouse to 55% of our blood's total volume.
- Plasma is always necessary to help our body recover from injury,

- distribute nutrients, remove waste and prevent infection, while moving throughout your circulatory system.
- Plasma is used for clotting factors where people with continuous bleeding disorders are unable to clot blood properly, which may result in organ damage and even death.
- During plasma donation, blood is drawn from the donor's arm and run through an automated process that removes the plasma portion from the blood.
- The remaining red blood cells and platelets are then returned to the donor's arm with a small amount of saline to maintain the overall volume.
- Plasma donations are used for slightly more specific purposes than
 a general blood donation. The most common uses of plasma
 donations include individuals who have experienced a severe
 trauma, burn or shock, adults or children with cancer, and people
 with liver or clotting factor disorders.
- Donated plasma can be frozen and preserved for up to one year.
- Nearly 10,000 units of plasma are needed every single day in The United States of America, and plasma transfusions are often a gift for life.

2. LITERATURE SURVEY

2.1 Existing problem

 A plasma donation occurs when a person voluntarily has blood drawn and used for transactions and made into pharmaceutical medications by a process called fractionation (separation of whole-blood components). Donation may

- be of whole blood, or of specific components directly.
- During the COVID 19 crisis, the requirement of plasma became a high
 priority and the donor count has become low. Saving the donor information
 and helping the needy by notifying the current donors list, would be a
 helping hand. In regard to the problem faced, an application is to be built
 which would take the donor details, store them and inform them upon a
 request.
- Plasma donor management system is a web-based system that can assists the information of blood bag during its handling in the blood bank. With this system, the user of this system can key in the result of blood test that has been conducted to each of the blood bag received by the blood bank. People who need blood are increasing day by day. People who have diseases like anemia or people who have gotten into accidents and run out of blood need constant supply of blood to sustain their life and there is not enough blood available for them. During the COVID 19 crisis, the requirement of plasma became a high priority and the donor count has become low.
- Saving the donor information and helping the needy by notifying the current donors list, would be a helping hand.
- In regard to the problem faced, an application is to be built which would take the donor details, store them and inform them upon a request. Plasma Donor Application is an android application that enables individuals who want to donate the blood to help the needy.
- It also enables blood donation camp organizers to record and store data for people who communicate with donors and it also provides centralized database.

Existing Solutions:

The key objectives of our work are:

- •To build a platform between blood donor and receiver.
- To implement a hybrid approach of K-Means and Agglomerative clustering algorithm.
- •To find the nearest blood donor in a specific region in the shortest possible time.
- •To increase the number of voluntary unpaid blood donations significantly.

2.2 References

1. Python Flask

https://flask.palletsprojects.com/en/2.2.x/

2. HTML

https://developer.mozilla.org/en-US/docs/Web/HTML

3. CSS

https://developer.mozilla.org/en-US/docs/Web/CSS

4. IBM Cloud

https://cloud.ibm.com/docs

5. DOCKER

https://docs.docker.com/

6. ibm_db

https://www.ibm.com/docs/en/db2/11.5?topic=framework-application-development-db

2.3 Problem Statement Definition:

• During the COVID 19 crisis, the requirement of plasma became a high priority and the donor count has become low.

- Saving the donor information and helping the needy by notifying the current donors list, would be a helping hand.
- In regard to the problem faced, an application is to be built which would take the donor details, store them and inform them upon a request.

Customer Problem Statement Template:



Problem	l am	I'm trying to	But	Because	Which makes me
Statement (PS)	(Customer)				feel
PS-1	a Blood Donor	Donate blood	page takes	the network	exasperated
			more time to	traffic was	
			respond.	high.	
PS-2	a User	search blood	page takes	It has large	frustrated
		donor	more time to	amount of	
			display.	datasets.	

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas



3.2 IDEATION AND BRAINSTORMING



Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

10 minutes to prepare

1 hour to collaborate

2-8 people recommended



Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

A Team gathering

Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

Think about the problem you'll be focusing on solving in the brainstorming session.

C Learn how to use the facilitation tools
Use the Facilitation Superpowers to run a happy and productive session.





Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

5 minutes

PROBLEM

A plasma donation occurs when a person voluntarily has blood drawn and used for transactions and made into pharmaceutical medications by a process called fractionation (separation of whole-blood components) Donation may be of whole blood, or of specific components directly



Key rules of brainstorming

To run an smooth and productive session

Stay in topic. Encourage wild ideas.









Brainstorm

Write down any ideas that come to mind that address your problem statement.

Team lead - Shreya M V

An application that Includes all the present date avallable plasma donors along with their detail to

To have a track of donors and to keep those donors during the demand.

Providing an easy and user friendly site for users.

Triggering the alert message when the Patient needs blood immediately.

the hospitals and branches.

Keep a record of the

blood donors and send them regular

message about the

blood needs.

Centralized transportation

system along with all

management system is a web based system that can assists the information of blood bag during its handling in the blood bank.

To have a track

of donors and

to keep those

donors during

the demand.

Sending E-mail

notification to the

user regarding the

blood needs.

Team Member 2 - Vigneshwaran S

People who have diseases like anemia or people who have gotten Into accidents.

has become low.

In regard to the problem faced, an application is to be built which would take the donor details, store them and inform them upon a request.

During the COVID 19 crisis, the requirement of plasma became a high priority and the donor count

Triggering the alert message when the Patient needs blood immediately.

Team Member 3 - ShyamPrasadh S

Team Member 1 - Vijayavarshini R

Plasma donor management system is a web based system that can assists the information of blood bag during its handling in the blood bank.

Centralized Keep a record of transportation the blood donors system along and send them with all the regular message hospitals and about the blood branches. needs.

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

(1) 20 minutes

Prediction and Analysis

Predicting the sucess ratio of donated donors. Predicting the ratio of new users to donate blood.

Features

E-mails and SMS alert to the users regarding the Immediate blood needs

24*7 working of the website to help the patients.

Services

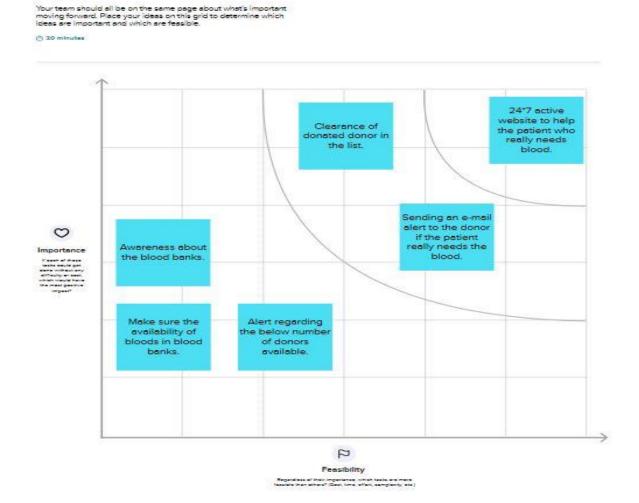
Online Website for patient who really needs a blood.

24°7 working of the website to help the patients.

Management

User feedback system management.

Managing the bloods in the blood bank and shows to the users.



3.3 Proposed Solution

O Prioritize

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	During the COVID 19 crisis, the
	Se solved,	requirement of plasma became a high
		priority and the donor count has
		become low.
		Saving the donor information and
		helping the needy by notifying the
		current donors list, would be a
		helping hand.
		In regard to the problem faced, an
		application is to be built which would
		take the donor details, store them
		and inform them upon a request.

2.	Idea / Solution description	This proposed system will have a
		daily update system whenever a
		product is sold or it is renewed more.
		The product availability is tracked
		daily and an alert system in again
		kept on to indicate those products
		which falls below the threshold limit.
		All the users can register their
		accounts after which they will be
		given a login credentials which they
		can use whenever they feel like
		searching for donors.

3.	Novelty / Uniqueness	This application will useful to the
		patient who really needs the blood
		donors.
		Notifications will be sent to the users
		if any donors that the users have
		been looking for is not available so
		that the donor not be stocked up
		soon.
4.	Social Impact / Customer Satisfaction	The users will be highly satisfied
	Satisfaction	since the wasting of time while
		searching for an unavailable donor is
		reduced.
		The user satisfaction will be
		improved for detting appropriate
		improved for getting appropriate
		response from the donors and that
		too immediately.

5.	Business Model (Revenue Model)	Hereby we can provide a robust and
		most reliable Plasma Donor
		Application by using:
		1. Defined algorithm is used to search the
		appropriate donor and suggest the
		donors to the users.
		2. To ensure the all time, any where
		availability of donors.
6.	Scalability of the Solution	Each and every time the
		commitments will be updated and
		registration will be updated.

3.4 Problem Solution fit

1. CUSTOMER SEGMENT(S)
Who is your customer?
Blood bank, donor

2. JOBS-TO-BE-DONE / PROBLEMS Which jobs-to-be-done (or problems) do you address for your customers?

There could be more than one; explore different sides. Registration of blood banks and donors can be done through this application.

3. TRIGGERS TR What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news. To maintain a good social health among people. Since blood is essential, having it ready in emergency cases might be helpful.

4. EMOTIONS: BEFORE / AFTER EM How do customers feel when they face a problem or a job and afterwards? i.e. lost, insecure > confident, in control - use it in your communication strategy & design.

Uncertainty of availability of blood will be a major problem. But later that is not the case.

5. AVAILABLE SOLUTIONS

Which solutions are available to the customers when they face the problem? This application provides the availability of the donors and details of the blood bank. Requests will be implemented immediately.

6. CUSTOMER CONSTRAINTS

What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices.

Unavailability of donors is a major constraint. Donors having any disease cannot donate blood. Donors donated blood cannot donate blood for next three months.

7. BEHAVIOUR BE

What does your customer do to address the problem and get the job done?

This application displays the donors list and the blood bank can choose among the donors ad make a request according to their needs.

8. CHANNELS of BEHAVIOUR

8.1 ONLINE

To check the availability of donors.

8.2 OFFLINE

Can view the donors list.

9. PROBLEM ROOT CAUSE

What is the real reason that this problem exists? What is the back story behind the need to do this job? i.e. customers have to do it because of the change in regulations.

The entire world is today diagnosed with new diseases so it is essential to donate blood in order to save lives.

10. YOUR SOLUTION

The application provides a platform for donors and blood bank. Based upon the request immediate actions will be taken.

4. REQUIREMENT ANALYSIS

4.1 Functional requirement

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form
FR-2	User Confirmation	Confirmation via Email
FR-3	User Searches	Searches through Dashboard
FR-4	Stores Data	In a Database
FR-5	Displaying the Count	Counting Via Stats Page

4.2 Non-Functional requirements

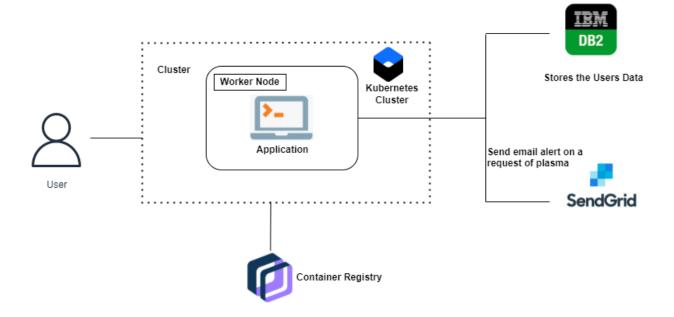
Following are the non-functional requirements of the proposed solution.

Following are the non-functional requirements of the proposed solution.

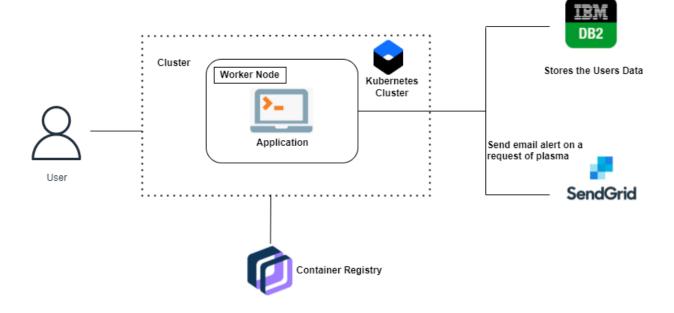
FR No.	Non-Functional Requirement	Description	
NFR-1	Usability	Everyone can use the application with ease	
NFR-2	Security	The user data was safe and secure in this application	
NFR-3	Reliability	The application is trustful for blood donors and acceptors	
NFR-4	Performance	The application can handle any number of users	
NFR-5	Availability	The application will work for 24/7 and provides the user demand	
NFR-6	Scalability	This will work as web application and mobile application	

5. Project Design

5.1 Data Flow Diagrams



5.2 Solution & Technical Architecture



User Type	Functional Requirement (Epic)	User Story Number	User Story / Ta ≟k	Accepta::ce criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
	Login	USN-3	As a user, I can log into the application by entering email & password		High	Sprint-1
	Dashboard	USN-4	As a User dashboard will fit comfortably in a page.		Low	Sprint-1
Customer (Web user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
	Login	USN-3	As a user, I can log into the application by entering email & password		High	Sprint-1
	Dashboard	USN-4	As a User dashboard will fit comfortably in a page.		Low	Sprint-1
Administrator	Service	USN-1	As a User to get a required response.		High	Sprint-1

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

TITLE	DESCRIPTION	DATE
Literature Survey & Information Gathering	Literature survey on the selected project & gathering information by referring the, technical papers, research publications etc.	3 SEPTEMBER 2022
Prepare Empathy Map	Prepare Empathy Map Canvas to capture the user Pains & Gains, Prepare list of problem statements	10 SEPTEMBER 2022
Ideation	List the by organizing the brainstorming session and prioritize the top 3 ideas based on the feasibility & importance.	10 SEPTEMBER 2022
Proposed Solution	Prepare the proposed solution document, which includes the novelty, feasibility of idea, business model, social impact, scalability of solution, etc.	10 SEPTEMBER 2022
Problem Solution Fit	Prepare problem - solution fit document.	1 OCTOBER 2022

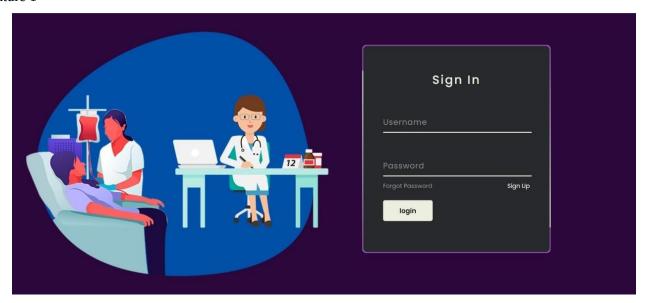
Solution Architecture	Prepare solution architecture document.	19 OCTOBER 2022
Customer Journey	Prepare the customer journey maps to understand the user interactions & experiences with the application.	15 OCTOBER 2022
Data Flow Diagrams	Draw the data flow diagrams and submit for review.	18 OCTOBER 2022
Technology Architecture	architecture diagram.	19 OCTOBER 2022
Prepare Milestone & Activity List	Prepare the milestones & activity list of the project.	28 OCTOBER 2022
Project Development - Delivery of Sprint-1, 2, 3 & 4	Develop & submit the developed code by testing it.	IN PROGRESS

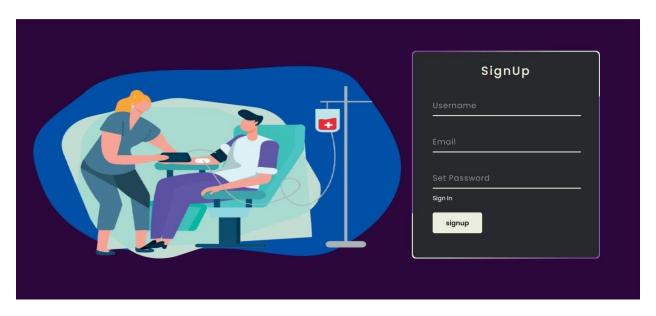
6.2 Sprint Delivery Schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password	2	High	Shreya M V Vijayavarshini R Vigneshwaran S Shyarn Prasadh S
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application.	1	High	Shreya M V Vijayavarshini R Vigneshwaran S Shyam Prasadh S
Sprint-1	Login	USN-3	As a user, I can log into the application by entering email & password	1	High	Shreya M V Vijayavarshini R Vigneshwaran S Shyam Prasadh S
Sprint-2	Dashboard	USN-1	As a user dashboard will fit comfortably in a page.	1	Low	Shreya M V Vijayavarshini R Vigneshwaran S Shyam Prasadh S
Sprint-3	Register	USN-1	Blood bank can register a bank name and search for blood donors.	1	High	Shreya M V Vijayavarshini R Vigneshwaran S Shyam Prasadh S
Sprint-3	Login	USN-2	Blood bank can login with the credentials to see the list of donors.	1	High	Shreya M V Vijayavarshini R

7. CODING & SOLUTIONING (Explain the features added in the project along with code)

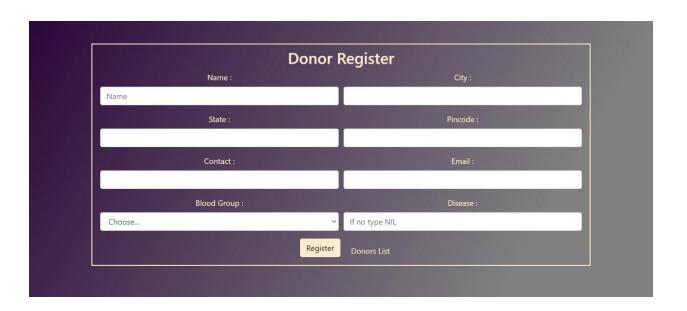
7.1 Feature 1



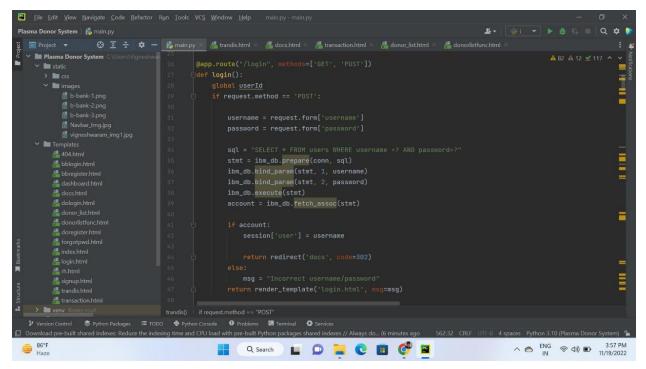


7.2 Feature 2

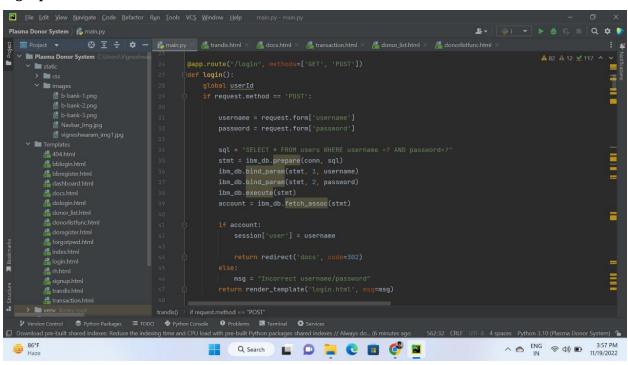
	od Bank Register
Blood Bank Name :	Password :
Name	Password
City:	State:
Eg:chennai	Eg:Tamilnadu
Pincode:	
Eg:636002	
Contact :	Blood Bank Email :
Eg:999999999	Email
Register Already have an account? Donor List	



Login Code:

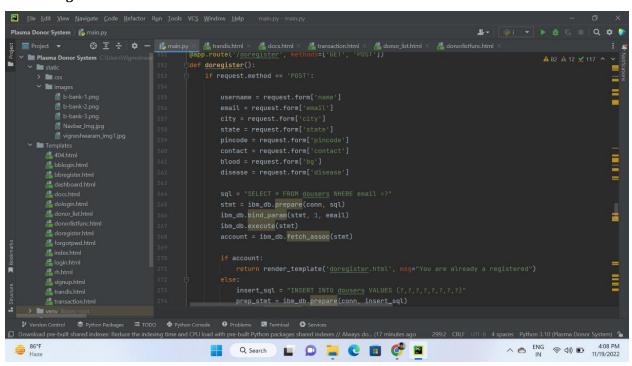


Signup code:

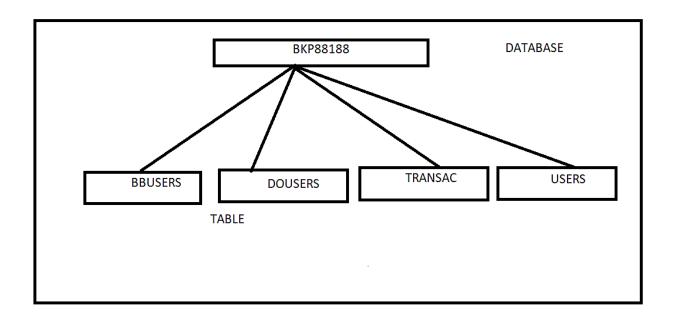


Blood Bank Register code:

Donor Register code:



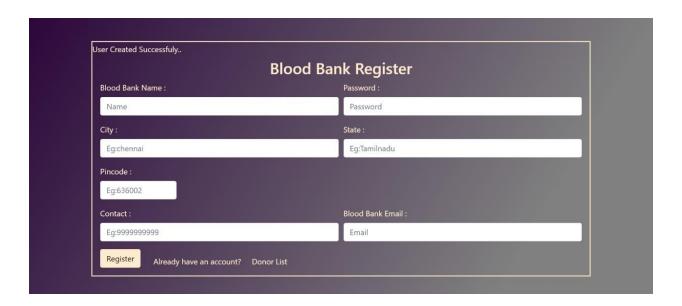
7.2 Database Schema (if Applicable)



8. TESTING

8.1 Test Cases

Blood Bank Register:



Donor Register:

		Donor Registere			
		Donor F	Register		
	Name :			City:	
Name					
	State :			Pincode :	
	Contact :			Email :	
	Blood Group :			Disease :	
Choose		¥	If no type NIL		
		Register	Donors List		

8.2 User acceptance testing



9. RESULTS

9.1 Performance Metrics

Name	Email	city	State	Pincode	Contact	Blood	Ask Blood
Vigneshwaran	vigneshwaransam877@gmail.com	salem	Tamil Nadu	636006	2345678909	A-	request
Vigneshwaran Sadasivan	vigneshwaransam 877@gmail.com	salem	Tamil Nadu	636006	sdfgh	0+	request
Vigneshwaran Sadasivam	vigneshwaransam877@gmail.com	salem	Tamil Nadu	636006	8765432654	B-	request
vir	vhvhv@gmail.com	ertyui	ertyu	ertyui	rtyuio	B-	request
v	v@gmail.com	v	v			B-	request
w	w@gmail.com	w	w	w	w	A-	request
Vigneshwaran Sadasivam	vigneshwaransam 8778@gmail.com	salem	Tamil Nadu	636006	q	B-	request
рр	p@gmail.com	Р	Р			0+	request
koothasri	koothaya@gmail.co	periyapudhu	tamilnadu	123456	8765678998		request
vvvv	vvvv@gmail.com	vvvv	vvvv	vvvv	vvvv	A+	request
vijaysri	Q@gmail.com	q	q	q	q		request
mayank	iop@gmail.com	a	a			A+	request

10. CONCLUSION:

Blood is the most essential thing to save a life. By donating blood, we can save many lives. It is also important to remember that any one of us may need blood at some point in our lives, making blood donation is an essential duty of our citizenry. In today's world where people are busy with their lifestyle and those who are eager to donate blood but are not able to, can plan to donate blood by sitting at home just by one click with our application. This application will make revolutionary changes to the medical system as people will be able to donate blood and serve mankind.

11. FUTURE SCOPE:

Plasma is essential to live. There would be new diseases emerging in the future, it is important to know about the donors.

12. APPENDIX

Source Code

GitHub & Project Demo Link

https://github.com/IBM-EPBL/IBM-Project-26267-1660022926

 $\underline{https://drive.google.com/file/d/1WmXH-9McCqkB33yH18e5NOkYxVoDzJFP/view?usp=share\ link}$