

PROJECT REPORT

1.INTRODUCTION

1.1 Project Overview

The goal of this project is to develop a user-friendly web application that functions as a scientific tool to help decrease mortality or assist COVID19 patients by donating plasma from patients. Plasma therapy is an experimental method to treat those COVID-positive individuals and aid in their speedier recovery. It has been shown to be effective in people who have recovered without receiving antiretroviral medication that has been licenced by the FDA. Therapy, which is regarded as trustworthy and secure. Any anyone who has fully recovered from COVID19 is qualified to give plasma. As we all know, the conventional ways of locating plasma require one to independently confirm the information by consulting hospital records and contacting recovered donors, who occasionally may not be present at home and may relocate. The health of those who are ill in this kind of situation deteriorates drastically. Finding plasma is not regarded as a quick process as a result. The blood bank can apply for a donor, and once the donor accepts, the blood bank can add the units they need. The hospital can also send a request to the blood bank that urgently needs the plasma for the patient, and the blood bank can then take the plasma from the blood bank. This is the main goal of the proposed system.

1.2 Purpose

The suggested approach aids users in determining the availability of contributors. A donor must register on the website and supply their information. The number of donors for each blood group is available to registered users. All the information, including name, email, phone number, and infection status, will be in the database. A notification about the need is sent to the concerned blood group donors whenever a user requests a specific blood group. To save the information and get the necessary information, a JSON programme is built.

2.LITERATURE SURVEY

2.1 EXISTING PROBLEM

The need for plasma surged significantly during the COVID 19 crisis since there were no vaccines available to treat the infected patients. Finding a plasma donor in such a case was extremely difficult, and determining which donors are eligible to donate plasma as well as whether they had previously been

infected and have recovered was a difficult effort. Obtaining the donor information was crucial because one of the treatments for infected patients included plasma therapy.

2.2 REFERENCES

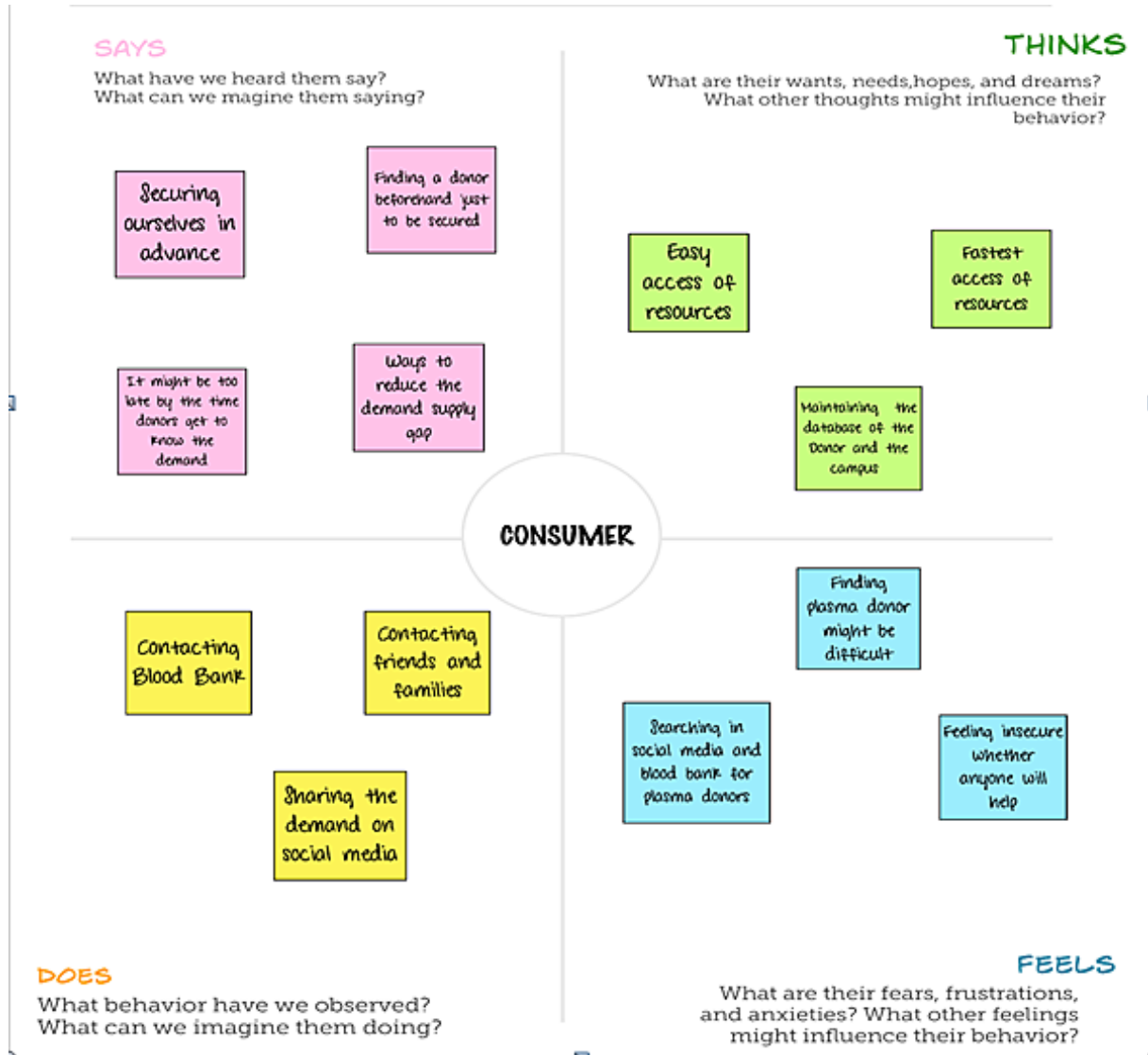
1. https://www.researchgate.net/publication/353623822_Real-time_cloud_system_for_managing_blood_units_and_convalescent_plasma_for_COVID-19_patients
2. https://www.researchgate.net/publication/269998043_A_Framework_for_a_Smart_Social_Blood_Donation_System_Based_on_Mobile_Cloud_Computing
3. https://www.researchgate.net/publication/329064347_A_Secure_Cloud_Computing_Based_Framework_for_the_Blood_bank

2.3 PROBLEM STATEMENT DEFINITION

The number of people who require blood is growing daily. There is not enough blood available for those who have conditions like anaemia or who have been in accidents and run out of blood because they need a regular supply of blood to support their life. Not because they don't want to donate blood, but rather because they are unsure of where to do so. It is crucial for those who want to donate but are incredibly busy to know where and when they can.

3. IDEATION & PROPOSED SOLUTION

3.1 EMPATHY MAP



3.2 IDEATION & BRAINSTORMING



3.3 PROPOSED SOLUTION

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The lack of specific blood types is among the biggest problems that healthcare facilities encounter. Another issue is that before starting patient blood transfer, facilities need immediate access to patient data.
2.	Idea / Solution description	Modern software applications are used in conjunction with Machine Learning, Cloud Computing, and Internet of Things (IoT) tools to address the problems. These tools make it possible for features like significant information retrieval, ongoing data tracking with analytics, and Cloud-powered search engines.
3.	Novelty / Uniqueness	Patient data logging and immediate data access with notifications are two essential components necessary in these technologies. An API network can be built using the cloud and the collected data. These systems can interact and alert one another via this network in situations where a particular resource stock falls below a predetermined level.
4.	Social Impact / Customer Satisfaction	The application is simple to use and will make it simple for individuals to locate plasma.
5.	Business Model (Revenue Model)	Blood products such intravenous immunoglobulin, albumin, and clotting factors are created using plasma by the plasma business. The plasma industry is a significant one on a global scale. Plasma-specific businesses have frequently been the target of acquisition attempts, and the sector is expanding.
6.	Scalability of the Solution	The system offers a more effective method of speaking with blood donors. Additionally, it has the ability to keep a database of registered donors. Additionally, it educates users on the most recent technology employed in the creation of Android-based applications.

3.3 PROBLEM SOLUTION FIT

Define CS, fit into CC	1. CUSTOMER SEGMENT(S) CS Generally, plasma donors must be 18 years of age and weigh at least 110 pounds (50kg). All individuals must pass two separate medical examinations.	6. CUSTOMER CONSTRAINTS CC You must wait at least eight weeks (56 days) between donations of whole blood and 16 weeks (112 days) between Power Red donations.	5. AVAILABLE SOLUTIONS AS People in need of plasma contact hospitals, blood banks, friends and families.	Explore AS, differentiate
	2. JOBS-TO-BE-DONE / PROBLEMS JP A person who donates plasma may experience adverse effects during the process or right afterward.	9. PROBLEM ROOT CAUSE RC Shortage of blood is a major issue faced by blood banks and this is due to the lack of donors, this has led authorities to reach out to the public via social media for patients who need blood transfusion urgently.	7. BEHAVIOUR BE The system offers a more effective method of speaking with blood donors. Additionally, it has the ability to keep a database of registered donors. Additionally, it educates users on the most recent technology employed in the creation of Android-based applications.	
Focus on JP, fit into BE, understand RC				Focus on JP, fit into BE, understand RC
3. TRIGGERS TR Plasma is required for the treatment of many persons. Plasma donation is actually utilised to help Covid affected people heal more quickly.		10. Your Solution A donor has to register to the website. The registered users can get the information about the donor. Whenever a user requests for a particular blood group then the concerned blood group donors will receive the notification regarding the requirement.		8. CHANNELS of BEHAVIOUR CH ONLINE and OFFLINE People with demand search for plasma in social media. People search for plasma in hospitals, blood banks, their friends and families.
4. EMOTIONS: BEFORE / AFTER EM Before donating, there are high levels of negative emotions (such as dread and worry), which are followed by mostly good emotions (such as warmth and relaxation).				

4.REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENT

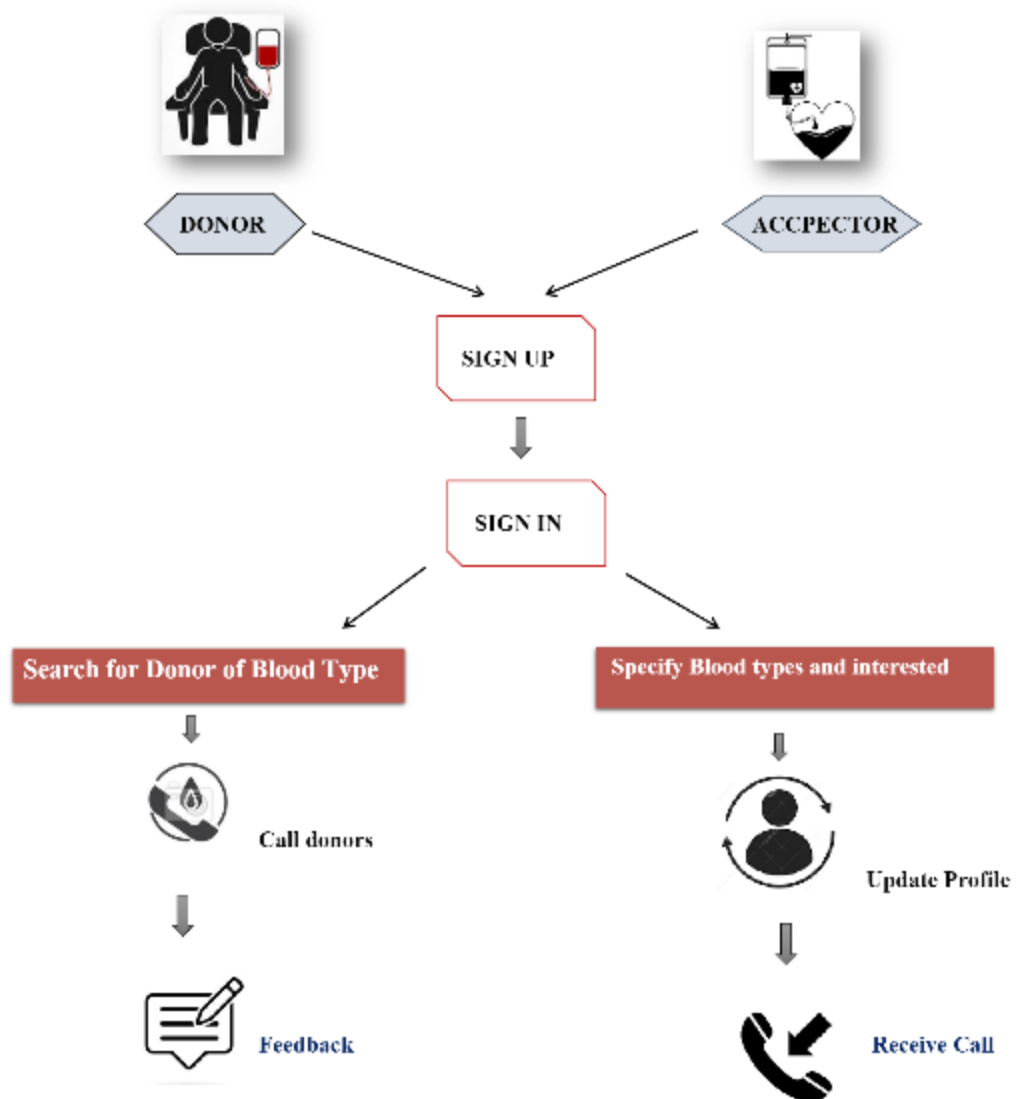
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIN
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	User Profile	The details of user such as name, gender, health conditions and blood group should be entered.
FR-4	Statistical Data	Statistics show that a tremendous amount of blood is needed plasma is needed to recover the illness. So, all the data should be recorded for future need.
FR-5	Analysis Process	The Registered donor's medical history should be analysed and check whether it meet the customer's requirement.
FR-6	Donation estimation	Plasma Donor Application is created and all the data is collected and stored in IBM cloud.

4.2 NON - FUNCTIONAL REQUIREMENTS

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The interface of the Plasma donor application must be attractive and user-friendly.
NFR-2	Security	Proper user names and passwords must be used to safeguard the blood bank management system.
NFR-3	Reliability	All the data in the System must be accurate and reliable.
NFR-4	Performance	The System must perform well in different scenarios.
NFR-5	Availability	It must be available 24 hours a day with no bandwidth issues.
NFR-6	Scalability	The System must <u>fulfill</u> on storage requirements, today and in the future. The Blood bank Management System must be scale up for increasing volume demands.

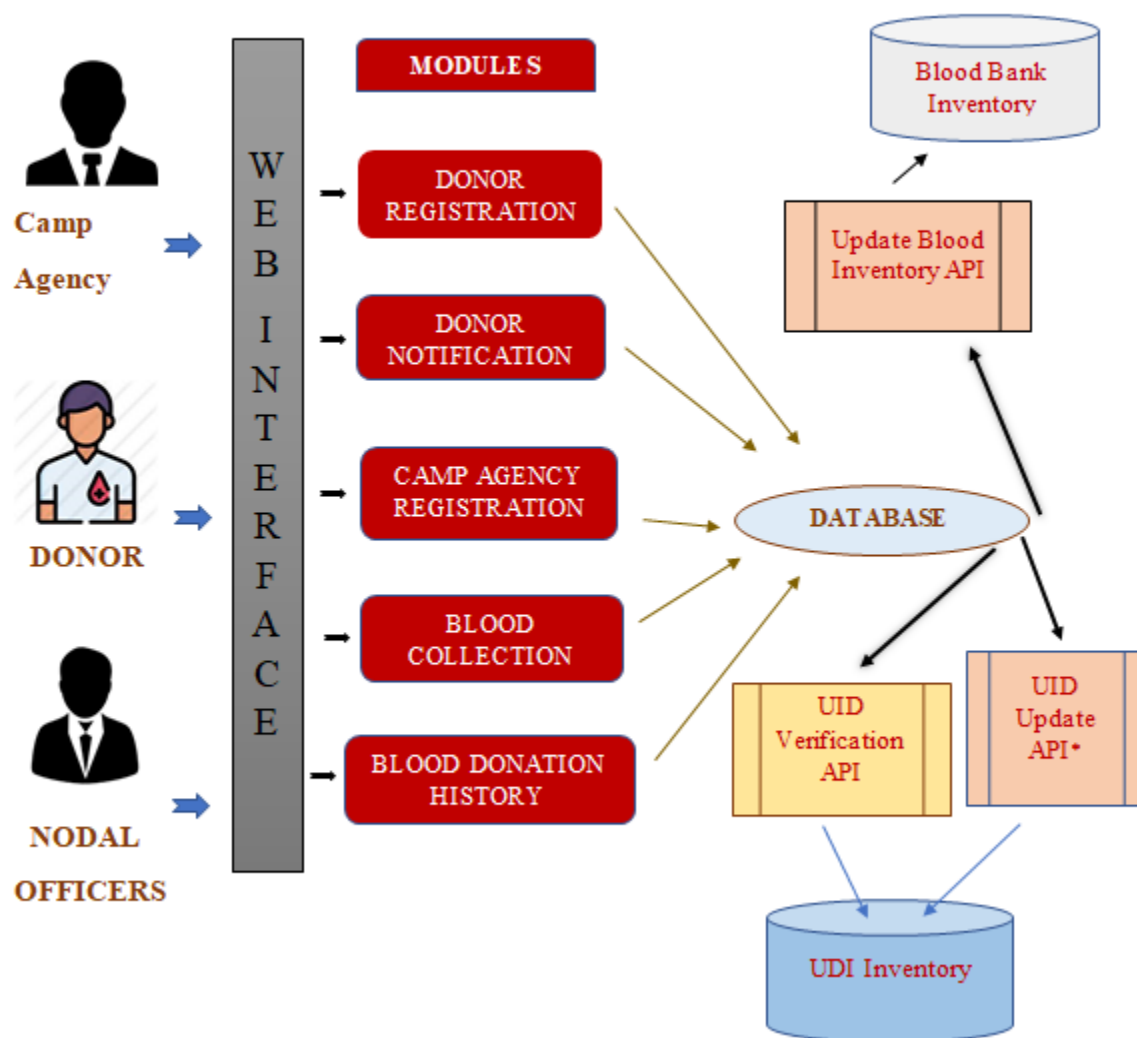
5.PROJECT DESIGN

5.1 DATA FLOW DIAGRAMS

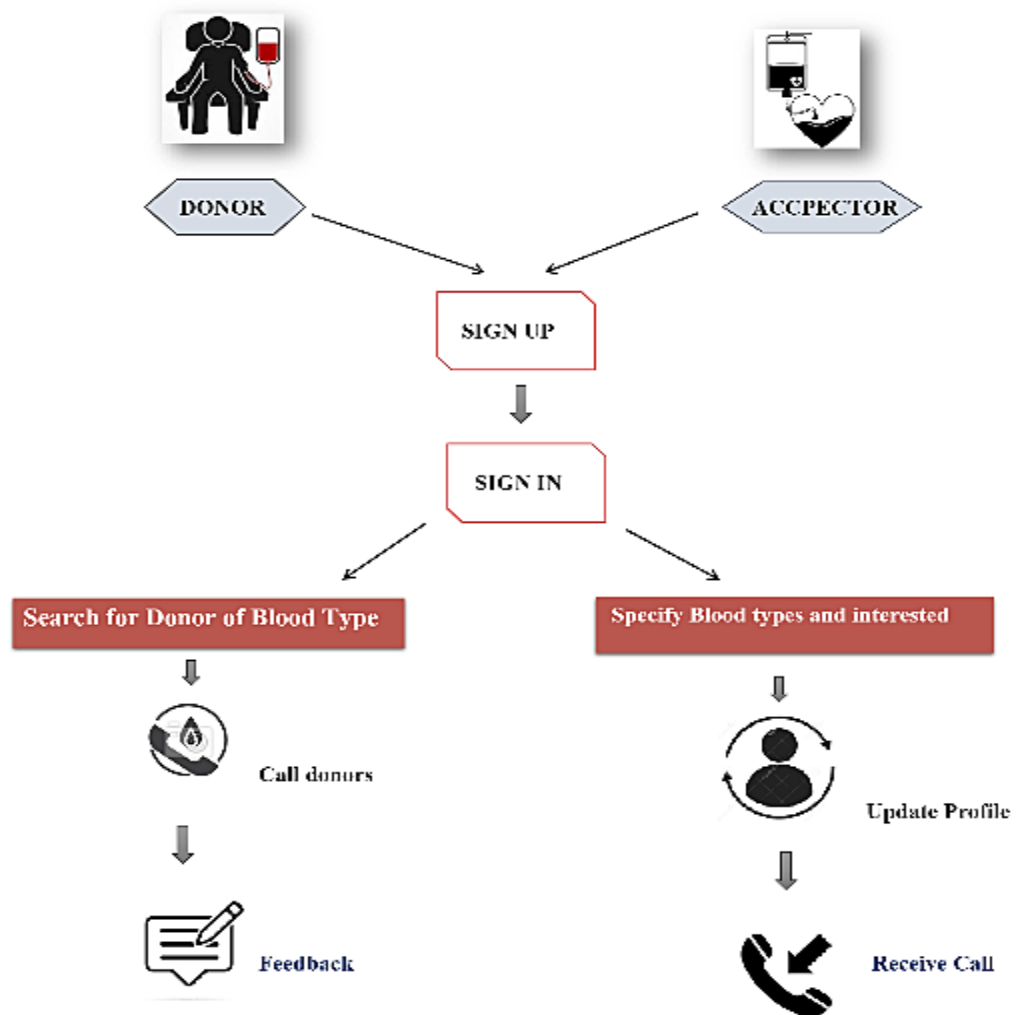


5.2 SOLUTION & TECHNICAL ARCHITECTURE

Solution Architecture Diagram:



TECHNICAL ARCHITECTURE:



5.3 USER STORIES

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Donor	Registration	USN-1	As a donor, I can enter My name, gender, contact details such as mobile number, email id, address. Then my Blood Group is also entered. Finally, I can register myself as a donor by setting a password and confirming it by re-entering it.	I can register and access my donor account.	High	Sprint-1
Donor	Login	USN-2	As a donor, I can login and use the web application in order to find the perfect donor within a short period of time whenever in need of blood plasma.	I can receive confirmation email & click confirm	High	Sprint-1
Patient	Registration	USN-3	As a Patient/ User, I can enter My name, gender, contact details such as mobile number, email id, address. Then my Blood Group is also entered. Finally, I can register myself as a donor by setting a password and confirming it by re-entering it.	I can register & access my user account	Low	Sprint-2
Patient	Login	USN-4	As a patient/user, I can login to the application and check the available blood units therefore, send a request to the donors of the same blood group as I need.	I can login my account in order to access it with username and password	Medium	Sprint-1
Patient	Sending Request	USN-5	After checking the stats I can send requests to donors of the required blood group		High	Sprint-1

6 PROJECT PLANNING & SCHEDULING

6.1 SPRINT PLANNING & ESTIMATION

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a donor, I can enter My name, gender, contact details such as mobile number, email id, address. Then my Blood Group is also entered. Finally, I can register myself as a donor by setting a password and confirming it by re-entering it..	5	High	PadmaPriya C
Sprint-1	Login	USN-2	As a donor, I can login and use the web application.	5	High	Snekha B
Sprint-1	Registration	USN-3	As a Patient/ User, I can enter My name, gender, contact details such as mobile number, email id, address. Then my Blood Group is also entered. Finally, I can register myself as a donor by setting a password and confirming it by re-entering it.	2	Low	Sanghavi G
Sprint-1	Login	USN-4	As a patient/user, I can login to the application.	3	Medium	Manjula G

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-2	Dashboard	USN-5	In order to find the perfect donor within a short period of time whenever in need of blood plasma	5	High	Sanghavi G
Sprint-2	Dashboard	USN-6	Check the available blood units therefore, send a request to the donors of the same blood group as I need.	3	Medium	Snekha B
Sprint-3	Sending Request	USN-7	After checking the status Patient can send requests to donors of the required blood group	5	High	PadmaPriya C
Sprint-4	Receiving Request	USN-8	As a Donor , I can receive notification from Patient	5	High	Manjula G

6.2 SPRINT DELIVERY SCHEDULE

TITLE	DESCRIPTION	DATE
Literature Survey and Information Gathering	We defined a unique literature architecture on selected project, that is referred from researches, publications etc..	07 October 2022
Prepare Empathy Map	We prepare a empathy map for easy understanding about pains and gains and problem statement.	07 October 2022
Ideation Brain Storming	In the brainstorming session, group ideas, prioritize and importance of selected project were discussed.	08 October 2022
Proposed Solution	Prepare the proposed solution document, which includes the problem statement ,idea or solution description, uniqueness, customer satisfaction and scalability of solution.	07 October 2022

Problem Solution Fit	Solves the customer's problem by preparing the problem solution fit document.	10 September 2022
Solution Architecture	Prepare solution architecture for description of a specific solution.	10 October 2022
Customer Journey	Use the customer journey for understanding the customer's needs.	17 October 2022
Solution Requirement	Prepare the functional requirement document for the purpose of security, availability and performance.	17 October 2022
Data Flow Diagram	Various categories and process of selected project are shared in the dataflow diagram.	17 October 2022
Technology Architecture	We have implemented such technologies in this architecture.	17 October 2022
Prepare Milestone & Activity List	Prepare the milestones and activity list of the project.	07 November 2022
Project Development Delivery of Sprint-1,2,3 & 4	Develop and submit the developed code by testing it.	07 November 2022

7.CODING & SOLUTIONING

7.1 FEATURE 1

<https://github.com/IBM-EPBL/IBM-Project-38744-1660385148/tree/main/Assessments/Project%20Development%20Phase/Project%20Development-Delivery%20of%20Sprint-1>

This feature contains Login page and SignUp page for both donor and requester.

7.2 FEATURE 2

<https://github.com/IBM-EPBL/IBM-Project-38744-1660385148/tree/main/Assessments/Project%20Development%20Phase/Project%20Development-Delivery%20of%20Sprint-2>

This module consists of the home page and the list of hospitals.

7.3 FEATURE 3

<https://github.com/IBM-EPBL/IBM-Project-38744-1660385148/tree/main/Assessments/Project%20Development%20Phase/Project%20Development-Delivery%20of%20Sprint-3>

In this module, the user can request for plasma and check for the availability of Plasma.

7.4 FEATURE 4

<https://github.com/IBM-EPBL/IBM-Project-38744-1660385148/tree/main/Assessments/Project%20Development%20Phase/Project%20Development-Delivery%20of%20Sprint-4>

Here we make a database connectivity for register, login and update of donor information.

8 TESTING

8.1 TEST CASES

Donate Plasma

Please check the guidelines/eligibility to donate plasma before submitting the form.

Name *

Enter your full name

Username *

Enter unique username

Password *

Enter your password

Gender *

☐ Male ☐ Female ☐ Other

Age * (Should be between 18 to 60)

Enter your age

Blood Group *

☐ O+ ☐ O- ☐ A+ ☐ A- ☐ B+ ☐ B- ☐ AB+ ☐ AB- ☐ Don't Know

Date Of COVID-19 positive *

Request Plasma

Name *

Enter your full name

Username *

Enter unique username

Password *

Enter your password

Gender *

☐ Male ☐ Female ☐ Other

Age *

Enter your age

Blood Group *

☐ O+ ☐ O- ☐ A+ ☐ A- ☐ B+ ☐ B- ☐ AB+ ☐ AB- ☐ Don't Know

Date Of COVID-19 positive *

dd-mm-yyyy

Donors List

Name	Age	Gender	Blood Group	Date of COVID-19 positive (yyyy-mm-dd)	Date of COVID-19 negative (yyyy-mm-dd)	Phone Number	State	City	Update Info	Delete
xyz	13	Female	A-	2021-05-05	2021-06-30	9463681599	Punjab	Rupnagar	Update	Delete

9. ADVANTAGES

Speed: Compared to manual register keeping, this website is quick and offers excellent accuracy.

Maintenance: Less maintenance is required

User Friendly: It is quite simple to use and comprehend. It is simple to use and open to everyone.

Fast Results: If there are any plasma donors available, it will assist you in getting them quickly.

10. DISADVANTAGES

Internet: The website's operation would require an internet connection.

Auto - Verification: The validity of the users cannot be automatically verified.

11. CONCLUSION

Utilizing the plasma donor website, which is hosted on a cloud platform, is the most effective way to locate plasma donors for the sick individuals. To guarantee the efficient running of the website. To ensure that the operation is successfully deploying the application cloud service, I have hosted the website on a cloud platform.

12 . FUTURE ENHANCEMENT

Making the user interface (UI) more user-friendly will make it easier for more people to visit the website and will ensure that the community can accommodate more plasma donors. A website's uptime can be maintained with little downtime by using an elastic load balancer to handle numerous requests at once.

GITHUB LINK

<https://github.com/IBM-EPBL/IBM-Project-38744-1660385148>

