PROJECT REPORT FOR PLASMA DONAR APPLICATION

1. INTRODUCTION

1.1 Project Overview

A plasma is a liquid portion of the blood, over 55% of human blood is plasma. Plasma is used to treat various infectious diseases and it is one of the oldest methods known as plasma therapy. Plasma therapy is a process where blood is donated by recovered patients in order to establish antibodies that fight the infection. In this project plasma donor application is being developed by using AWS services. The services used are AWS Lambda, API gateway, DynamoDB, AWS Elastic Compute Cloud with the help of these AWS services, it eliminates the need of configuring the servers and reduces the infrastructural costs associated with it and helps to achieve serverless computing. For instance, during COVID 19 crisis the requirement for plasma increased drastically as there was no vaccination found in order to treat the infected patients, with plasma therapy the recovery rates were high but the donor count was very low and in such situations it was very important to get the information about the plasma donors. Saving the donor information and notifying about the current donors would be a helping hand as it can save time and help the users to track down the necessary information about the donors.

1.2 Purpose

As we all know, the traditional methods of finding plasma, one has to find out for oneself by looking at hospital records and contacting donors have been recovered, sometimes may not be available at home and move to other places. In this type of scenario, the health of those who are sick becomes disastrous. Therefore, it is not considered a rapid process to find plasma. The main purpose of the proposed system, the donor who wants to donate plasma can simply upload their covid19 traced certificate and can donate the plasma to the blood bank, the blood bank can apply for the donor and once the donor has accepted the request, the blood bank can add the units they need and the hospital can also send the request to the blood bank that urgently needs the plasma for the patient and can take the plasma from the blood bank.

2. LITERATURE SURVEY

2.1 Existing problem

There are many people who are willing to donate plasma and who need plasma.
But there is not any accessible way to help them to find plasma donation centers in real-time. So, the problem is not the lack of donors, but finding the right sponsor at the right time. If someone needs plasma, they seek plasma first from family members, then from hospitals and the nearest plasma bank. If they can't process plasma in these ways, it's very difficult for them to contact another for a short-term plasma draw. This is a problem that I want to solve through this application. Instead of just providing plasma to people in need with an outdated list of regular plasma donors who may or may not be available to help, This application reaches the right people the moment users find Out.

2.2 References

Several experiments have been carried out over the years by different groups of researchers. Here are some of the following groups:

[1] Denuis O'Neil (1999). "Blood component" Archived from the original on June 5, 2013. Normally, a certain amount of human body weight comes from blood. For adults, it is 4-6 liters of blood. This essential liquid plays an important role in transporting oxygen and nutrients to cells and removing carbon dioxide, ammonia and other waste products. Blood is a very common tissue composed of over 4000 different types of components.

[2] ways to keep your plasma healthy, Original Archived November 1, 2013, Accessed November 11, 2011. Plasma donation is one of the most accepted practices for saving lives,While earning a few dollars. The whole process can take some time, but it's well worth it once you experience it a few times. Accepting money in exchange for plasma is welcome. It's a move when you feel like you're not just a hero, but you're adding value to yourself. The term "healthy" does not mean only in the absence of disease. It also means that you are healthy enough.

[3] Ripathis S, Kumar V, Prabhakar A, Joshi S, Agarwal A (2015). "Microscale Passive Plasma Separation: A Review of Design Principles and Microdevices," J. Micromech Micro 25 (8): 083001; Plasma separation is of great importance in the fields of diagnosis and healthcare. Due to the lagging transition to microscale, these recent trends are a rapid shift towards shrinking complex macro processes.

[4] In this paper, the author has carried out analysis based on the opportunities presented by serverless computing. They emphasize that serverless services are a more affordable approach for many network services and it is more user friendly as a serverless approach will relieve the customers from the intricacies of deployment. These services will help to improve the new business opportunities.

[5] Author conducted a survey of existing serverless platform in this paper from source projects, industry, academia, use cases, and key characteristics and has described the challenges and the open problems associated with it. Authors work presented a hands on experience of serverless technologies using different services from different cloud provides such as Amazon, Google, IBM, Microsoft Azure.

[6] In this paper three demonstrators for IBM Bluemix OpenWhisk were presented. They exhibit event-based programming triggered by weather forecast data, speech utterances and Apple WatchOS2 application data. And also demonstrated a chatbot using IBM Bluemix OpenWhisk that calls on the IBM Watson services which include dates, weather, alarm services, news and music tutor.

[7] In this paper serverlessOS was designed. It comprises components such as 1. desegregation model that leverages desegregation for abstraction but it will enable resources to move fluidly between servers for the performance. 2. The second key component is cloud orchestration layer which helps to manage fine-grained resource placement and allocation throughout the application lifetime with the help of global and local decision making 3. And the third component is an isolation capability which enforces data and resource isolation.

[8] In this paper an efficient resource management system for serverless computing framework was proposed which aims to enhance resource with a focus on memory allocation among the containers and the design which was added on top of an open-source serverless platform, openLambda and it is based memory needs events are triggered

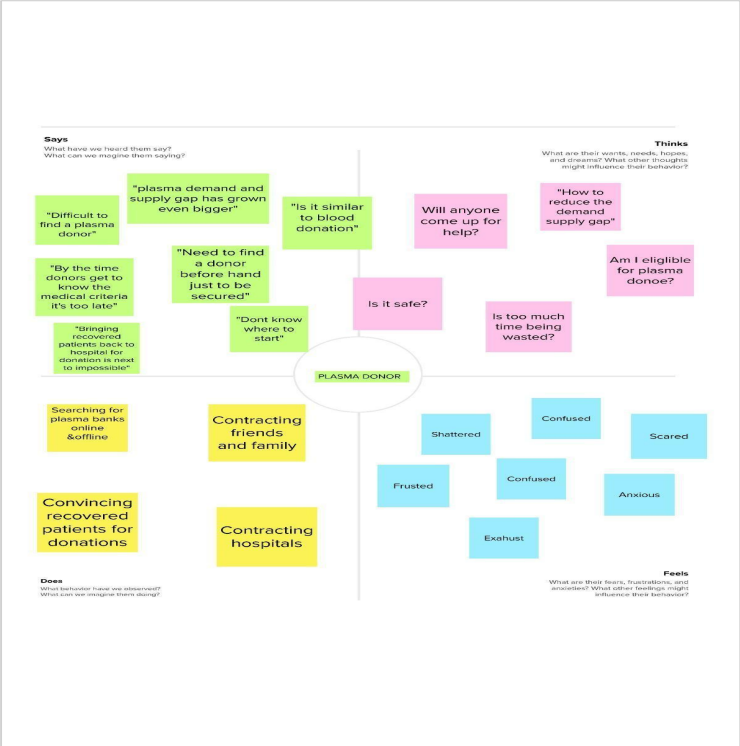
2.3 Problem Statement Definition

This system aims at connecting the donors & the patients by an online application. By using this application, the users can either raise a request for plasma donation or requirement. Similar to blood donors there also exist plasma donors where there exists problems like in case of emergency needs the most important life saver necessity is plasma , Plasma Banks are the main providers of plasma who receives blood from

various donors, monitors the plasma groups database of emergencies and makes them available to the hospital whenever needed. The major problem faced by the main plasma providers and the need is the availability of donors at the right time. We hereby took a step forward to build a system to create a network of people who can help each other in need. We propose an application where the plasma banks can timely update the plasma Stock availability and donor and register themselves to the donor and the user can find plasma availability nearby him/her. The urgent time of a plasma requirement, users can quickly check for plasma .

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas



3.2 Ideation & Brainstorming

https://github.com/IBM-EPBL/**IBM-Project-9870-1659082262/Pre-Development/ideation phase/**Brainstorm.pdf.pdf

3.3 Proposed Solution

<table>
<tr>
<td>1.CUSTOMER SEGMENT(S)

Who is your customer? People who wish to donate plasma and Hospitals & Blood banks which needs plasma donors</td>
<td>5.AVAILABLE SOLUTIONS

Which solutions are available to the customers when they face the problem?
Available solutions notify about the donors, patients and the availability of plasma & need for the plasma. The notification regarding the need for plasma was not send to the donors</td>
<td>8. CHANNEL OF BEHAVIOUR
8.1 ONLINE What kind of actions do customers take online?
Registering for plasma donation and requesting for plasma will be carried out through online

8.2 OFFLINE What kind of actions do customers take offline?
Arrangements for plasma donation Awareness for more plasma donation</td>
</tr>
<tr>
<td>2. JOBS-TO-BE-DONE / PROBLEMS J&P

Which jobs-to-be-done (or problems) do you address for your customers?
Data collection should be monitored properly with the donor's data security. Unawareness about the need for plasma donation. Demand for donors.</td>
<td>6.CUSTOMER CONSTRAINTS

What constraints prevent your customers from taking action or limit their choices of solutions?
Network Bandwidth Donor Health condition Lack of knowledge about app Unavailability of plasma</td>
<td>9.PROBLEM ROOT CAUSE

What is the real reason that Does this problem exist?
What is the backstory behind the need to do this job?
Lack of unawareness about the importance of plasma donation. Inability to find the donors at the time of emergency. Decrease in donors count</td>
</tr>
<tr>
<td>3. TRIGGERS TR
What triggers customers to act?

Volunteering interest and social responsibility towards society triggers the people to use this application

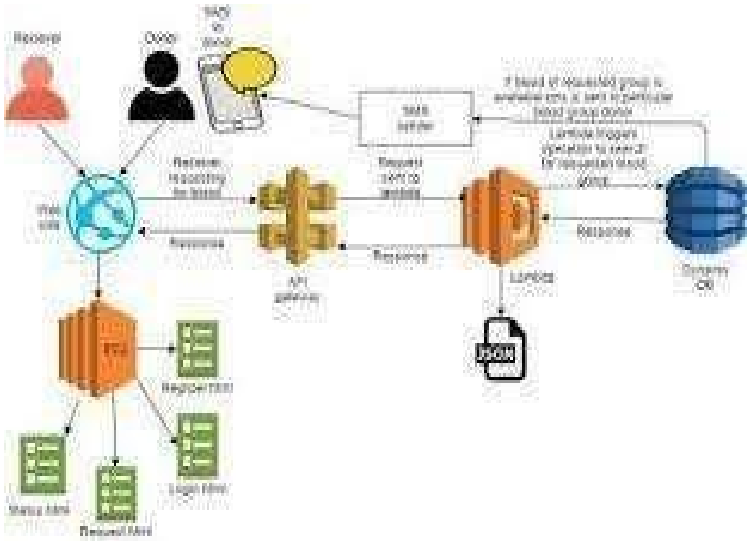
4. EMOTIONS: BEFORE / AFTER EM
How do customers feel when they face a problem or a job and afterwards?
Before : Hard to find the donors for plasma donation at the right time.
After Satisfactory feel and relaxed feel after getting the right donor</td>
<td>7. BEHAVIOUR

What does your customer do to address the problem and get the job done?
An unique ID will be provided for the donor’s, in order to maintain their personal privacy. At the same time, an unique ID will be issued to the patient and the records will be monitored. Both donor and patient can access the application at ease</td>
<td>10. YOUR SOLUTION

SL Donors will be searched with blood groups in our database, if needed.
The volunteers can donate the blood with their interest and become donors by registering themselves.
Stock monitoring will be done and updates happen at the same time.
An application which will act as the intermediate between the hospital and donors and bridge the gap between them.</td>
</tr>
</table>

3.4 Problem Solution fit

S.NO	**Parameter**	**Description**
1.	Problem Statement (Problem to be solved)	The main aim of this project is to help the people who need blood in an emergency and to associate some donors who are willing to donate their blood to needy people and save their lives.
2.	Idea / Solution description	The user will be able to Search donors of suitable blood groups and contact them if needed. Donate blood by registering themselves with our system and can also become donors. Will be able to see the stock of various blood groups. Send requests for blood via “contact us”. Get information about all the blood campaigns.
3.	Novelty / Uniqueness	All of them have different ideas and different queries. Based on the user request and experience we will update our project based on user convenience .
4.	Social Impact / Customer Satisfaction	With the right implementation of the software you can benefit in many ways and also it makes the management very easy and error free. The software helps in tracking donors, getting Prompt and Correct Reports when required, and Centralized data storage with security. And last but not the least; the software will help in Customer Satisfaction.

5.	Business Model (Revenue Model)	Hospitals, NGOs, and private groups will profit from this donation application. Anyone with a basic understanding can use this software. This can be utilized at any time, anywhere. Working with the assistance of the government, we can create a programme to assist persons in need of plasma. 
6.	Scalability of the Solution	Instead of scouring the entire world for plasma donors, this program enables users to find donors while sitting at home. Once there is an emergency, send a plasma request to all people. The donor is prepared to be informed of the donation. Receiver may get in touch with the donor. Due to this Donors can check their eligibility on an app as well as making it simpler to find a suitable donor

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	**Access Website**	Software operator should be capable to access web- application through either an application browser or similar on the pc.

FR-2	**Software operator Registration**	The software operator should be able to register through the web-application. The donor software operator must provide user name, gender, blood/plasma group, location, contact.
FR-3	**Login/logout/updat e details**	The login information will be stored on the database for future use.
FR-4	**Search for donor**	Search results can be viewed in a list. Each element in the list represents a specific donor with the donor details.
FR-5	**User plasma request**	Users can request to donate plasma by filling out the request form on the page. Once the request is submitted, they will get an email.
FR-6	**View distribution details**	The plasma bank should be able to view the status of the distribution details.

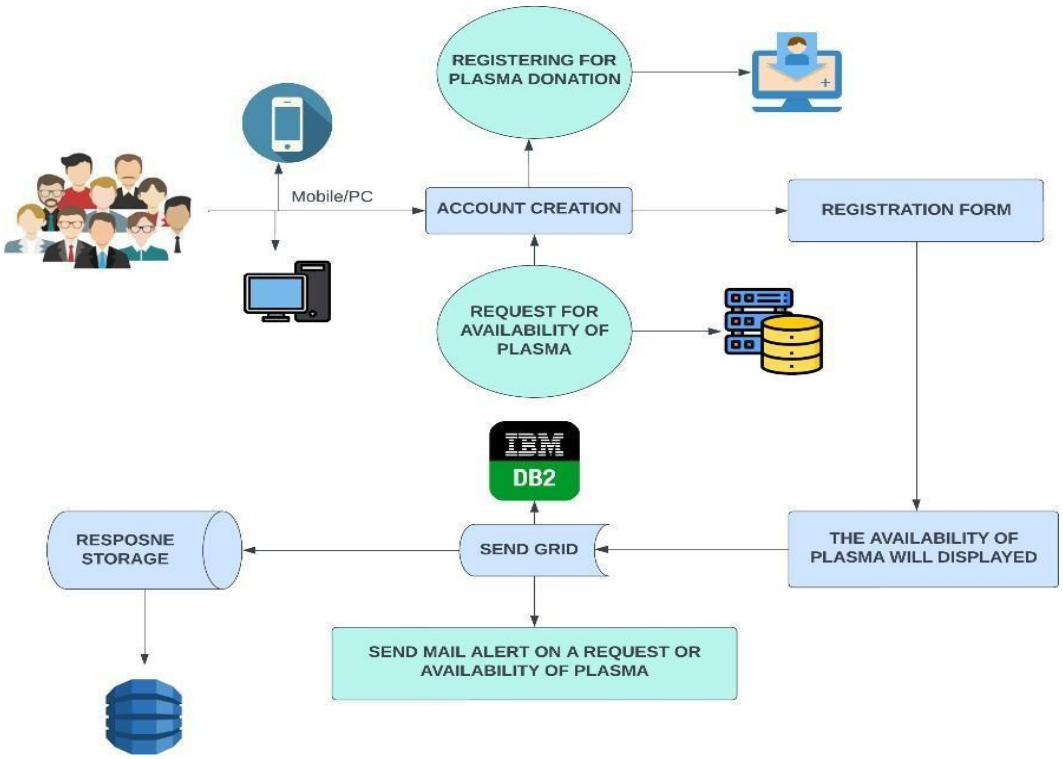
4.2 Non-Functional requirements

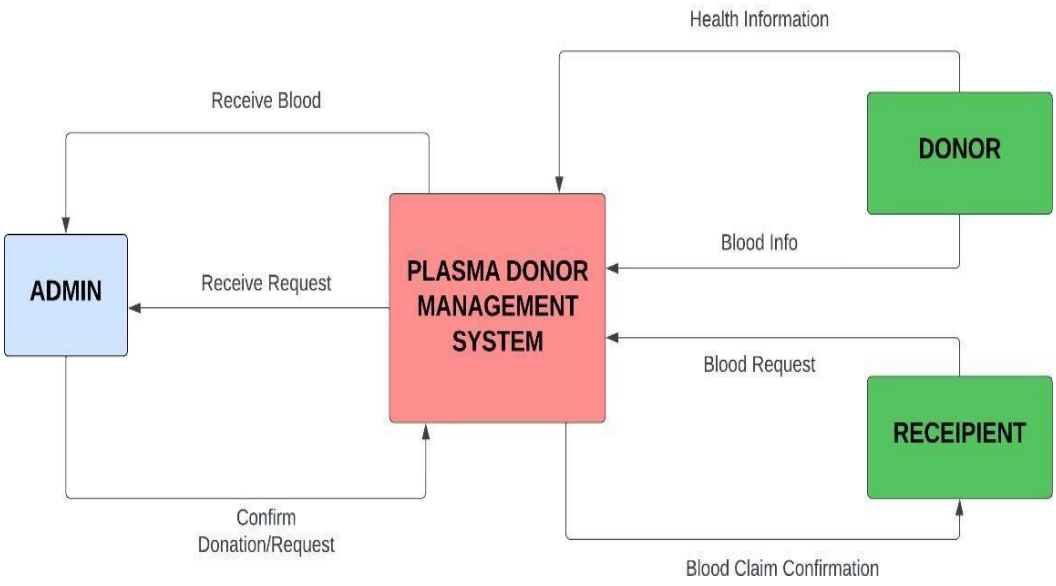
Following are the non-functional requirements of the proposed solution.

FR No.	**Non-Functiona l Requirement**	**Description**
NFR-1	**Usability**	The plasma donor application must have a good looking user friendly interface.
NFR-2	**Security**	The plasma donor application must be secured with proper username and passwords.
NFR-3	**Reliability**	The plasma donor application should work properly,even when faults occur.
NFR-4	**Performance**	The plasma donor application must perform well in different scenarios.
NFR-5	**Availability**	The plasma donor application must be available 24 hours a day with no bandwidth issues.
NFR-6	**Scalability**	The plasma donor application should able to increase or decrease in performance and cost in response to changes in application and system processing demands.

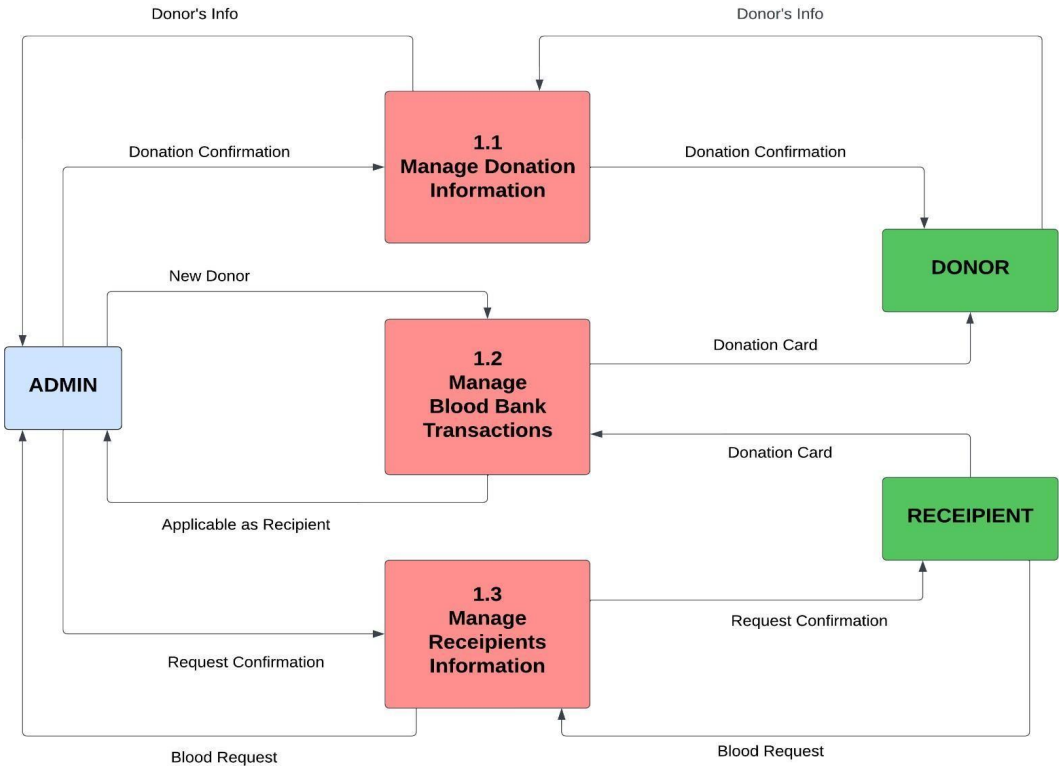
5. PROJECT DESIGN

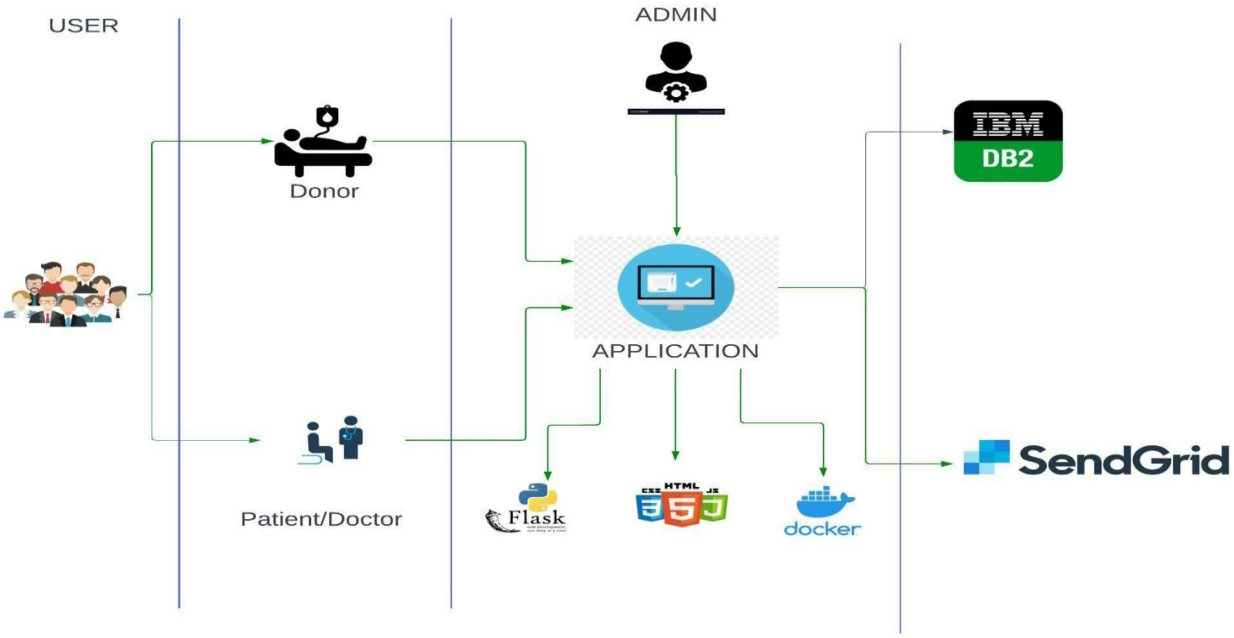
5.1 Data Flow Diagrams





DATA FLOW DIAGRAM LEVEL 1





5.2 Solution & Technical

Architecture Table-1: Components &

Technologies:

SNO	Component Description	Description	Technology
1	User Interface	The interaction between th use and application e.g.,Web UI, Mobile App, Chatbot	HTML, CSS, JavaScript / Bootstrap etc.
2	Application Logic-1	Framework used for designing the application.	Python, Python - Flask
3	Application Logic-2	Accessing the cloud and storing details of the users both donors and patients.	IBM Cloud, IBM DB2
4	Application Logic-3	Docker is an open-source platform for building, deploying, and managing containerized applica	Docker
5	Database	Data Type, Configurations etc.	SQL.
6	Cloud Database	Database Service on Cloud	BM Cloud and IBM DB2
7	File Storage	File storage requirements	IBM Block Storage or NO Storage Service or Local File System

Table-2: Application Characteristics:

sno	Characteristics	Description	Technology
1	Open-Source Framework	Python – flask is an open-source framework used to develop the application.	Python – flask is an open source framework used to develop the application.
2	Security Implementation	Container registry and Kubernetes Cluster are used for encryption of data.	Container registry and Kubernetes Cluster
3	Scalable Architecture	Kubernetes Cluster allow containers to run across mu machines and environments.	Kubernetes Cluster
4	Availability	Kubernetes Cluster provides all time availability.	Kubernetes Cluster
5	Performance	Docker improves the application performance.	Docker

5.3 User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance 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

		USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail	I can receive confirmation email click confirm	Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password	I can enter into my account	High	Sprint-1
	Dashboard	USN-6	As a user ,Display all details about plasma application	I can donate/get details about the plasma	High	Sprint-2
Customer (Web user)	Application	USN-7	As a user ,I can register, login and see details about plasma	I can access the donor details and availability of plasma	High	Sprint-3
Customer Care Executive	Update Plasma storage	USN-8	Keep track the availability of the Plasma	I can provide application for customer needs	High	Sprint-4
Administrator	Verify donor details	USN-9	To add the donor plasma details in application	I can Control the all details in this application	Medium	Sprint-3
Customer Care Executive	Verify Customer Feedback	USN-10	To design the application that meets user's desires	I can satisfy the customer expectations	Medium	Sprint-4
Customer Care Executive	Control all Plasma details	USN-11	Make sure to check the availability of plasma in application	I can alert notification through email and SMS	High	Sprint-2
Administrator	Performance of application	USN-12	To make the process more efficient	I can save time, cost by improving the Plasma management application	High	Sprint-4

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	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.	High	SOWMIYA G SOWMIYA K
Sprint-1	Login	USN-2	As a user, I can log into the application by entering email & password	High	SOWNDARYADEVI A SONA BHARATHI G
Sprint-2	Dashboard	USN-3	As a user ,Display all details about plasma application	High	SONA BHARATHI SRI VIDHYA P
Sprint-3	Application	USN-4	As a user ,I can register, login and see details about plasma	High	SOWNDARYADEVI A SRI VIDHYA P SOWMIYA G
Sprint-3	Verify donor details	USN-5	To add the donor plasma details in application	Medium	SOWMIYA K SONA BHARATHI
Sprint-2	Control all Plasma details	USN-6	Make sure to check the availability of plasma in application	High	SOWMIYA G SOWMIYA K SRI VIDHYA P
Sprint-4	Verify feedback	USN-7	To design the application that meets user's desires	Medium	SOWMIYA G SOWMIYA K SRI VIDHYA P SOWNDARYADEVI A

6.2 Sprint Delivery Schedule

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Sprint Release Date (Actual)
Sprint-1	30	6 Days	25 Oct 2022	30 Oct 2022	30 Oct 2022

Sprint-2	30	6 Days	1 Nov 2022	6 Nov 2022	6 Nov 2022
Sprint-3	30	6 Days	8 Nov 2022	13 Nov 2022	13 Nov 2022
Sprint-4	30	5 Days	14Nov 2022	18 Nov 2022	18 Nov 2022

$$AV = \frac{sprint\ duration}{velocity} = \frac{20}{10} = 2$$

7. CODING & SOLUTIONING

7.1 SendGrid

SendGrid is a cloud-based SMTP provider that allows you to send email without having to maintain email servers. SendGrid manages all of the technical details, from scaling the infrastructure to ISP outreach and reputation monitoring to whitelist services and real time analytics.

SendGrid provides two ways to send email: through our SMTP relay or through our Web API. SendGrid provides client libraries in many languages. This is the preferred way to integrate with SendGrid. If you choose to use SendGrid without a client library, the Web API is recommended in most cases as it is faster, provides some beneft with encoding, and tends to be easier to use. SMTP provides many features by default, but is harder to setup.

Web API

- The Web API has some advantages over SMTP:
- If your ISP blocks all outbound mail ports and your only option is HTTP.
- If there is high latency between your site and ours, the Web API might be quicker since it does not require as many messages between the client and server.
- If you do not control the application environment and cannot install and configure an SMTP library.
- If you build a library to send email, developing against a web API provides quicker development.

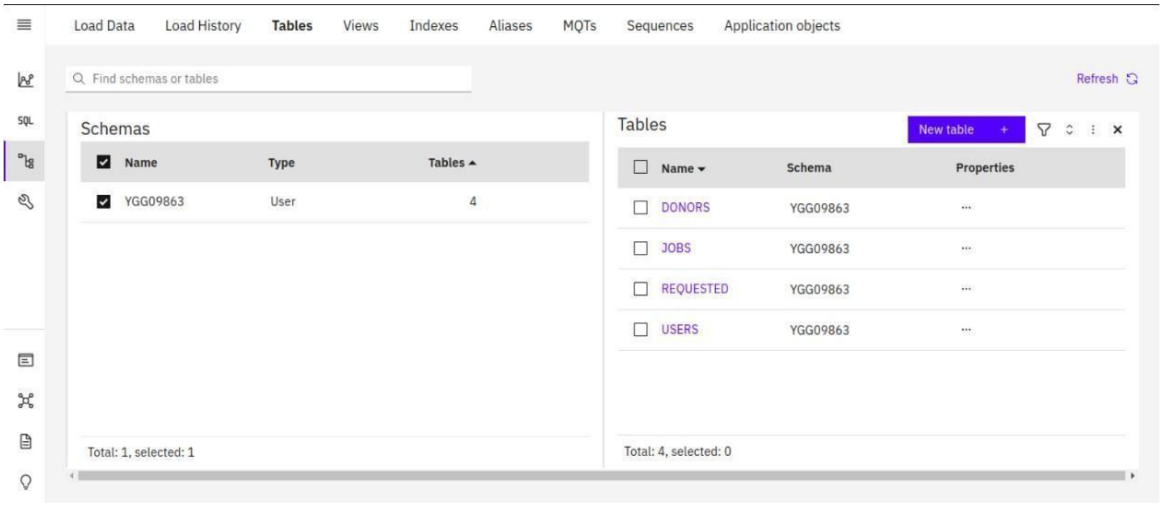
SMTP Relay

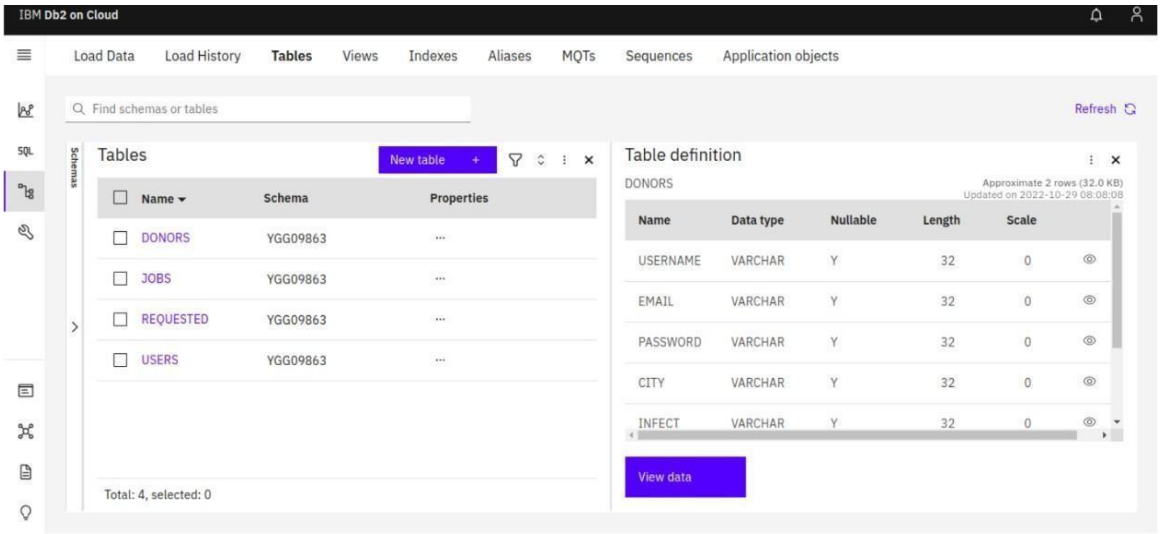
- If you are integrating SendGrid with an existing application, setting up the application to use our SMTP relay is easiest, as it only requires modifying SMTP configuration.
- Change your SMTP username and password to your SendGrid credentials.
- Set the server host name to smtp.sendgrid.net
- Use ports 25 or 587 for plain/TLS connections and port 465 for SSL connections.

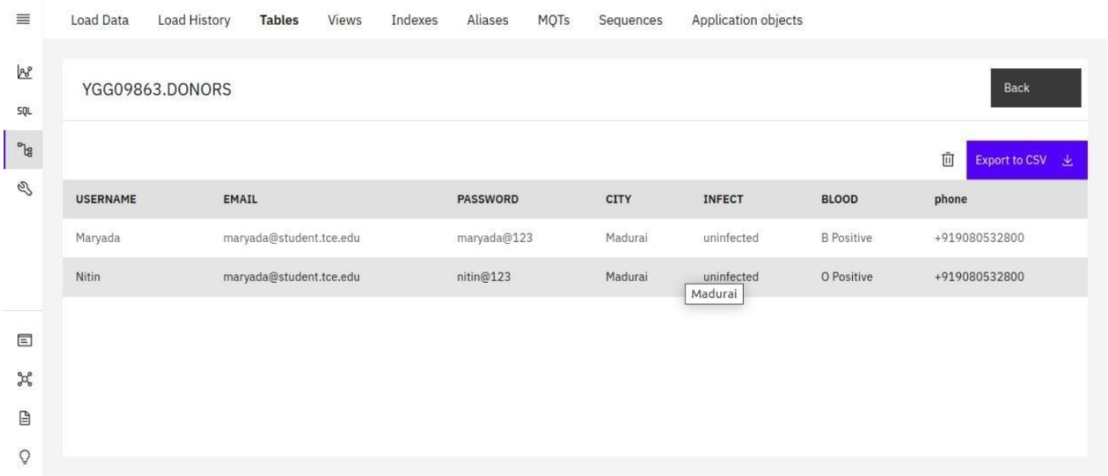
Code:

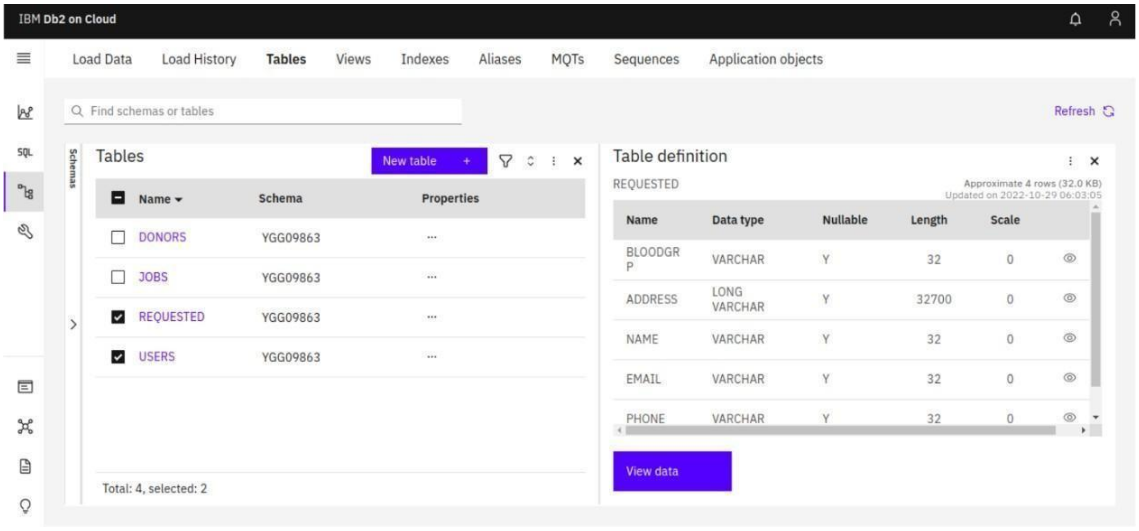
```
import os
from dotenv import load_dotenv
load_dotenv()
from sendgrid import SendGridAPIClient
from sendgrid.helpers.mail import Mail def
sendmail(usermail,subject,content):
    message =
Mail(from_email='maryada@student.tce.edu',to_emails=usermail,subject=subj
ect,html_content='<strong> {} </strong>'.format(content))
    try:
        sg = SendGridAPIClient(os.getenv('SENDGRID_API_KEY')) response
        = sg.send(message)
        print(response.status_code)
        print(response.body)
        print(response.headers)
    except Exception as e:
        print(e.message)
```

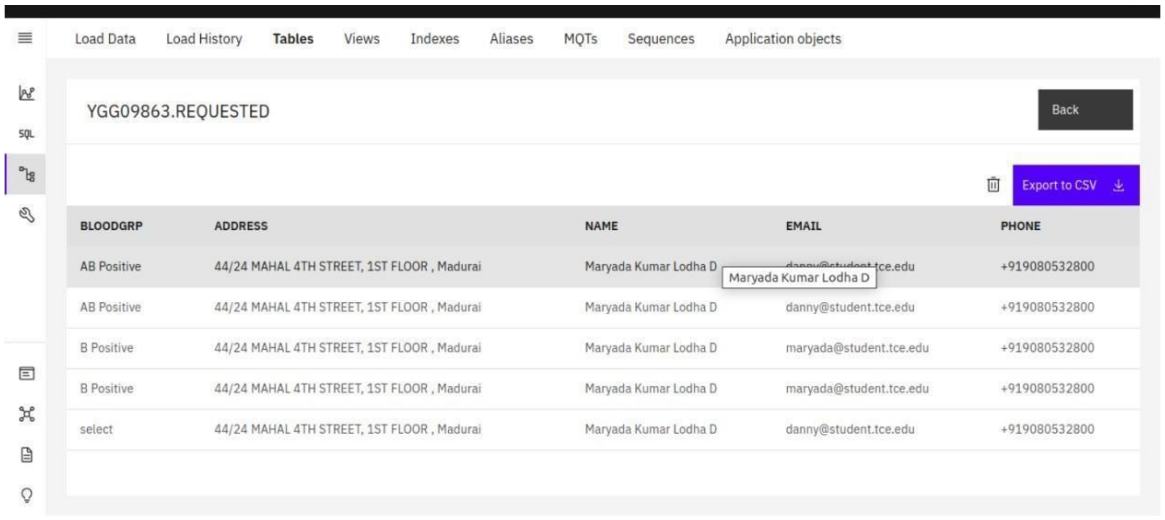
7.2 Database Schema




IBM Db2 on Cloud
Load Data
Load History
Tables
Views
Indexes
Aliases
MQTs
Sequences
Application objects
Find schemas or tables
Refresh
Schemas
Tables
New table
Name
Schema
Properties
DONORS YGG09863
JOBS YGG09863
REQUESTED YGG09863
USERS YGG09863
Total: 4, selected: 0
Table definition
DONORS
Approximate 2 rows (32.0 KB)
Updated on 2022-10-29 08:08:08
Name
Data type
Nullable
Length
Scale
USERNAME VARCHAR Y 32 0
EMAIL VARCHAR Y 32 0
PASSWORD VARCHAR Y 32 0
CITY VARCHAR Y 32 0
INFECT VARCHAR Y 32 0
View data


Load Data
Load History
Tables
Views
Indexes
Aliases
MQTs
Sequences
Application objects
YGG09863.DONORS
Back
Export to CSV
USERNAME
EMAIL
PASSWORD
CITY
INFECT
BLOOD
phone
Maryada maryada@student.tce.edu maryada@123 Madurai uninfected B Positive +919080532800
Nitin maryada@student.tce.edu nitin@123 Madurai uninfected O Positive +919080532800
Madurai


IBM Db2 on Cloud
Load Data
Load History
Tables
Views
Indexes
Aliases
MQTs
Sequences
Application objects
Find schemas or tables
Refresh
Schemas
Tables
New table
Name
Schema
Properties
DONORS YGG09863
JOBS YGG09863
REQUESTED YGG09863
USERS YGG09863
Total: 4, selected: 2
Table definition
REQUESTED
Approximate 4 rows (32.0 KB)
Updated on 2022-10-29 06:03:05
Name
Data type
Nullable
Length
Scale
BLOODGRP VARCHAR Y 32 0
ADDRESS LONG VARCHAR Y 32700 0
NAME VARCHAR Y 32 0
EMAIL VARCHAR Y 32 0
PHONE VARCHAR Y 32 0
View data


Load Data
Load History
Tables
Views
Indexes
Aliases
MQTs
Sequences
Application objects
YGG09863.REQUESTED
Back
Export to CSV
BLOODGRP
ADDRESS
NAME
EMAIL
PHONE
AB Positive
44/24 MAHAL 4TH STREET, 1ST FLOOR , Madurai
Maryada Kumar Lodha D
+919080532800
AB Positive
44/24 MAHAL 4TH STREET, 1ST FLOOR , Madurai
Maryada Kumar Lodha D
danny@student.tce.edu
+919080532800
B Positive
44/24 MAHAL 4TH STREET, 1ST FLOOR , Madurai
Maryada Kumar Lodha D
maryada@student.tce.edu
+919080532800
B Positive
44/24 MAHAL 4TH STREET, 1ST FLOOR , Madurai
Maryada Kumar Lodha D
maryada@student.tce.edu
+919080532800
select
44/24 MAHAL 4TH STREET, 1ST FLOOR , Madurai
Maryada Kumar Lodha D
danny@student.tce.edu
+919080532800

8. RESULT

8.1 Authentication Module

- Sign Up

New user or donor can create an account to use in the blood/plasma donor application and create a password for account verification and create an identity.

- Sign In

Donor Sign In to the account for viewing or editing location details and any other personal information.

- Account Verification

If donor changes their password or if they forget the password then we have to verify their account using mail verification.

8.2 Service Provider Module

- Add New Donor

User can be able to register to add donor details.

- List All Donor

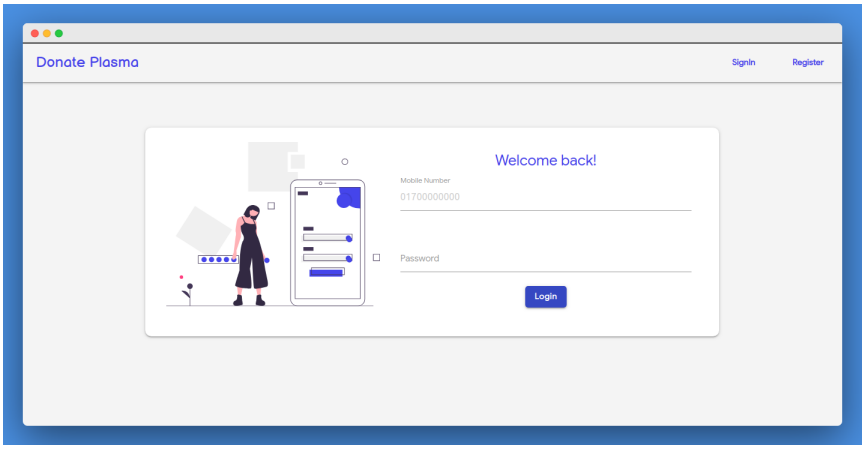
User can be able to view all Donor who all use our Plasma Donor Application.

- Edit Customer Plan Details

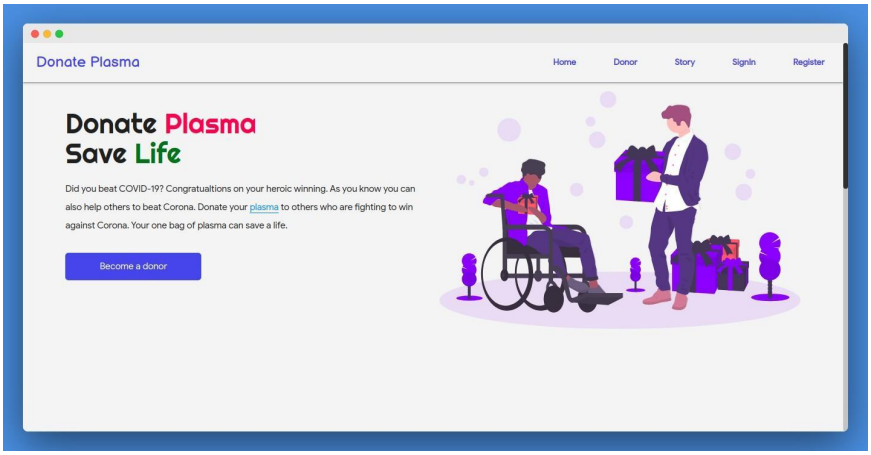
User can be able to edit the existing Donor details as the Donor wish

.

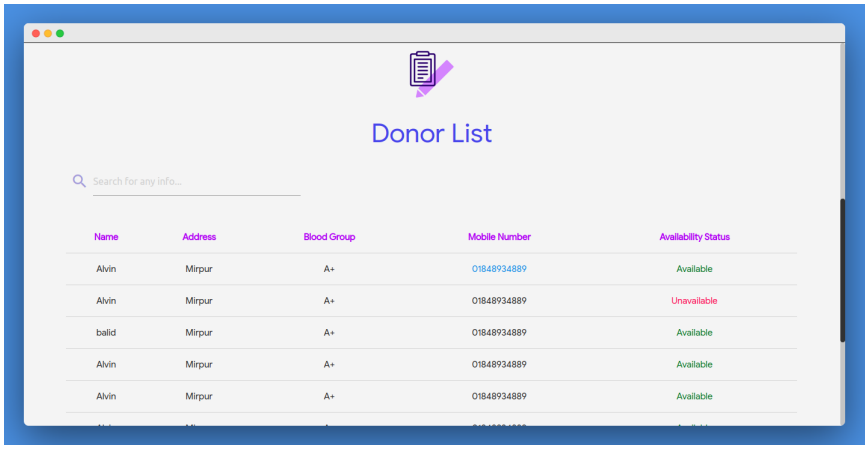
8.3 Screen Layouts



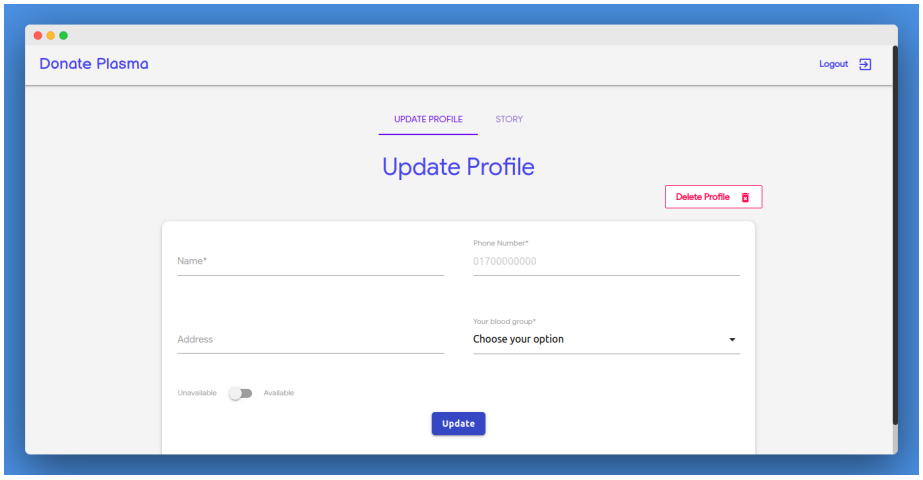
LOGIN PAGE



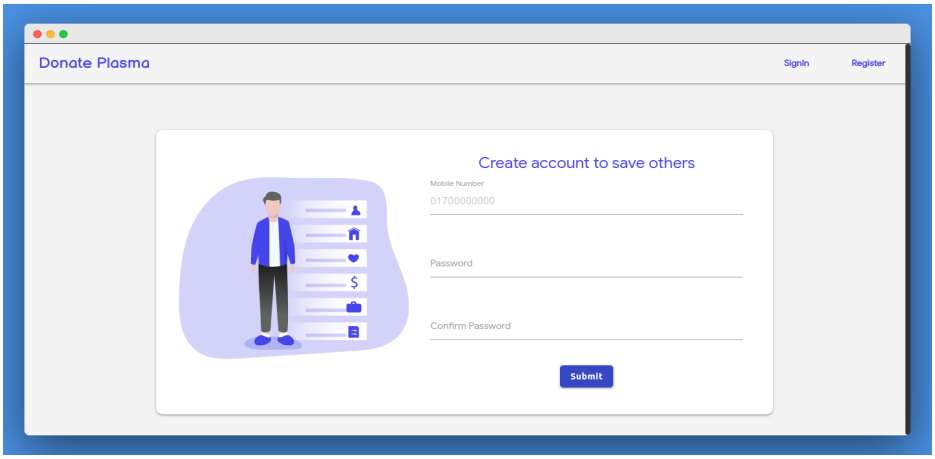
Home page



Donar page



Profile Page



Registration page

The Donors can register their account using their email ID. Once registered, The Donor can sign-up by using his\her respective password. The login page for Plasma Donors is shown in the figure, which contains the E-mail and Password field. The profile of the Donor, where he/she needs to enter the required details. After registration Donor can maintain according to his availability. The registration page with Full Name, Email Address, Last donated date, Password, Contact Details, Blood Group, Location and all other details, which is illustrated. The details of the available donors can be displayed and viewed by other users.

9. ADVANTAGES & DISADVANTAGES

Advantages

Speed

This website is fast and offers great accuracy as compared to manual registered keeping.

Maintenance

Less maintenance is required

User Friendly

It is very easy to use and understand. It is easily workable and accessible for everyone.

Fast Results

It would help you to provide plasma donors easily depending upon the availability of it.

Disadvantages

Internet

It would require an internet connection for the working of the website.

Auto- Verification

It cannot automatically verify the genuine users.

10. CONCLUSION

Although the government is carrying out Covid vaccination campaigns on a large scale, the number of vaccines produced is not enough for all the population to get vaccinated at present. And with the corona positive cases rising every day, saving lives has become the prime matter of concern. As per the data provided by WHO more than 3 million people have died due to the coronavirus. However, apart from vaccination, there is another scientific method by which a covid infected person can be treated and the death risk can be reduced. This plasma therapy is an experimental approach to treat corona- positive patients and help them recover. This plasma therapy is considered to be safe & promising. A person who has recovered from Covid can donate his/her plasma to a person who is infected with the coronavirus.

This system proposed here aims at connecting the donors & the patients by an online application. By using this application, the users can either raise a request for plasma donation or requirement. Both parties can Accept or Reject the request. User has to Upload a Covid Negative report to be able to Donate Plasma. This system is used if anyone needs a Plasma Donor Blood and Plasma donation is a kind of citizen's social responsibility in which an individual can willingly donate blood/plasma via our app. This Application has been created with the concept and has sought to make sure that the donor gives blood/plasma to community. This model is made user friendly so anybody can view and maintain his/her account. This application will break the chain of business through blood/plasma and help the poor to find donor at free of cost. This project will help new blood/plasma banks improve their services and progress from traditional to user-friendly frameworks.

11.` FUTURE SCOPE

Plasma Application can be developed to further improve user accessibility via integrating this application with various social networks application program interfaces (APIs). Consequently, users can login and sign up using various social networks. This would increase number of donors and enhances the process of blood donation.

User interface (UI) can be improved in future to accommodate global audience by supporting different languages across countries. Data scraping can be done from different social networks and can be shown in the Blood/Plasma Request Feeds. Appointments can be synchronized with Google and Outlook calendars for the ease of users.

Donor and Beneficiary Stories feature aims to create a sense of belonging to the community. Donors will be able to view and share personal experiences about their donation; Beneficiaries can share their experiences of receiving blood transfusion which contributed to their improved health and lives.

Live Check-in Process feature aims to provide a better experience with regards to the waiting time when the user is in the process of donation. We hypothesise that a more efficient experience will help the user look forward to his blood/plasma donation appointments.

12. APPENDIX

- ***GitHub and Source code Link***
  https://github.com/IBM-EPBL/IBM-Project-9870-1659082262.git