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CHAPTER 1
INTRODUCTION

1.1 PROJECT OVERVIEW

This project aims to provide a web application where the donors register themselves by providing their medical and contact information, including their medical certificate so that other users in the application can verify the medical fitness of the donor. Patients can see the list of registered donors and request them to donate plasma. Donors will receive immediate alerts upon a request along with the medical and contact information of the patient who made the request.

According to the survey conducted by World Health Organization (WHO) for the Year 2019, India wants eight crore units of Blood, however only ten lakhs units are available on the market, that shows the intense shortage of blood in our country. In a more recent study by Joy John Mammen et al. (2022), the total clinical demand of 251 health facilities with 51,562 beds was 474,627 whole blood units. Based on this, the clinical demand for India was estimated at 14.6 million whole blood units, an equivalent of 36.3 donations per 1,000 eligible population. The study indicated a demand and supply gap of 2.5 donations per 1,000 eligible persons which is around one million units.

Even with the rapid technological advancements and social media usage across the world, there is a lack of a quick and easy way to find plasma donors around the locality of the needy. Finding blood donors is a challenging issue almost worldwide, even in developed countries.

Also, during the COVID 19 crisis, the requirement of plasma became a high priority and the donor count was lower than the demand. But now, even though the number of cases are dropping significantly worldwide, the need for plasma donation seems to rise due to the spread of other diseases such as Dengue, Malaria, Influenza, etc. So, our project aims to consider all those societal problems and provide an efficient solution to resolve them.

1.2 PURPOSE

The following section describes the primary purposes of this project.

The project aims to

- Provide an easy way to find donors quickly.
- Notify all matching donors so that at least one of them can immediately reach thepatient's location for emergency situations.
- Resolve the imbalance between the demand and supply of plasma donation.
- Save lives by helping people in need of plasma.
- Provide a cross-platform web-based solution so that the app can be accessed from anyplatform or device.

CHAPTER 2

LITERATURE SURVEY

Literature survey is "A survey of related literature refers to a study done before or after selecting a research problem to know about the previous research work, ideas, theories, procedures, techniques, problems occurring during the research, etc. is done for."

2.1 EXISTING PROBLEM

The already existing solutions possess the following problems:

- Closed for general plasma donations and is strictly closed for Covid-19 patients.
- Applications specifically made for certain operating systems like Android, iOS, etc.
- Specifically made for blood banks and doesn't provide any provisions to end users.
- Request alerts are available only upon logging in to the application.
- Lack of immediate alerts to donors upon receiving a request.
- No provisions to verify the medical fitness of donors which may lead to unhealthypeople further affecting the health of the patients.

2.2 REFERENCES

The following research papers and projects were referred to during the process ofliterature survey. These papers were extracted from www.researchgate.net.

- Sanjay Mallisetti, Tejaswini Jalli, Kalpana Devi Guntoju and Sreeja Uppala (2022) -“An Instant Plasma Donor-Recipient Connector Web Application - BDoor”
- Muthukrishnan M, Ramakrishnan M, Periyanayagi S and Manikandan A (2021) -“Blood Donation Application for Android” - BDoor
- Aishwarya R Gowri (2020) - “Blood Donation Application for Android”
- Babajide Ayeni, Olaperi Yeside Sowunmi, Sanjay Misra, Rytis Maskeliunas, Robertas Damasevicius and Ravin Ahuja (2020) - “A Web Based System for the Discovery of Blood Banks and Donors in Emergencies”
- Meiyappan A, Prasanna R, Sakthivel T, Loga Vignesh K (2019) - “Blood Donation App for Android - DWorld”
- Vamsi Krishna Tatikonda and Hosam El-Ocla (2017) - “Bloodr: blood donor and requester mobile application”
- Abdul Rahman Alkandari, Fatma Eisa Alkandari and Altaf Alshammari (2016) - “Blood bank smartphone application for managing and organising blood donation”

2.3 PROBLEM STATEMENT

The problem statement of this project is defined user perspective to analyze what the users need to satisfy their needs.

The statements are defined in perspectives of two types of users namely donors and patients where the former wishes to donate plasma to the needy while the latter wants to find donors near them and send them a request to donate plasma to them.

Problem Statement (PS)	**I am (Customer)**	**I'm trying to**	**But**	**Because**	**Which makesme feel**
PS-1	a donor	donate plasm a tothe needy	I can't do it at the right time	the app doesn't notify me at the time of plasma request	guilty that I wasn't able to save someone's life
PS-2	a patient	find plasma donors nearme	I find it difficultto find the donors	the app's user interface is noteasy to use andit doesn't update donor's list real-time	that my healthmight get worse

CHAPTER 3

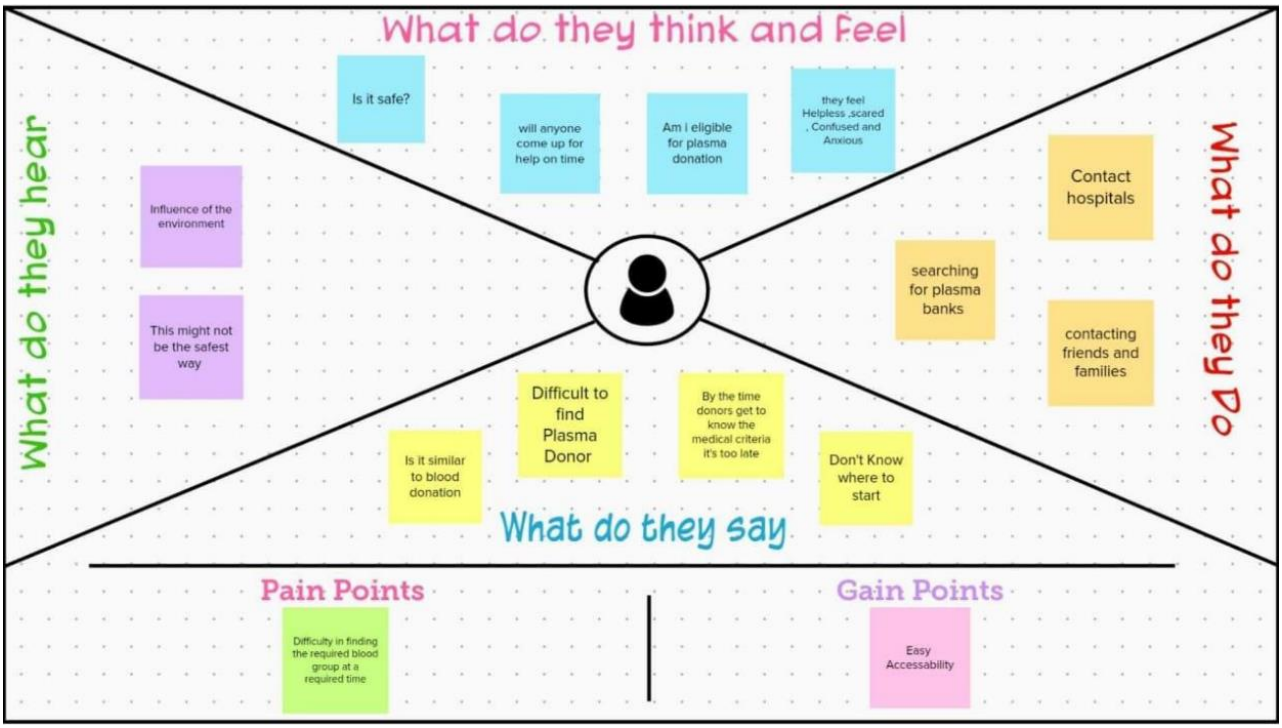
IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

An empathy map is **a collaborative tool teams can use to gain a deeper insight into their customers**. Much like a user persona, an empathy map can represent a group of users, such as a customer segment. The empathy map was originally created by Dave Gray and has gained much popularity within the agile community.

The empathy map is used to analyse the problem from the user perspective such as,

- What do they think and feel?
- What do they see?
- What do they hear?
- What do they say and do?
- The pains and gains of the users



3.2 Ideation & Brainstorming

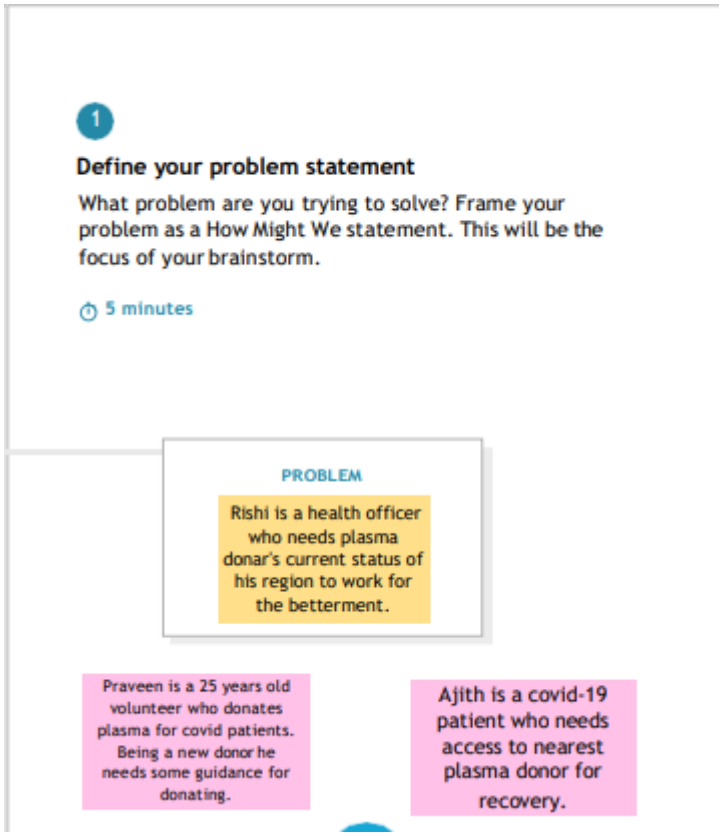
Brainstorming is a group problem-solving method that involves the spontaneouscontribution of creative ideas and solutions.

Brainstorming allows people to think more freely, without fear of judgment. Brainstorming encourages open and ongoing collaboration to solve problems and generate innovative ideas. Brainstorming helps teams generate a large number of ideas quickly, which can be refined and merged to create the ideal solution.

Idea prioritization has been performed by the following ways.

1. Define problem statement

It defined the problem that we're trying to solve in "how might we" format.

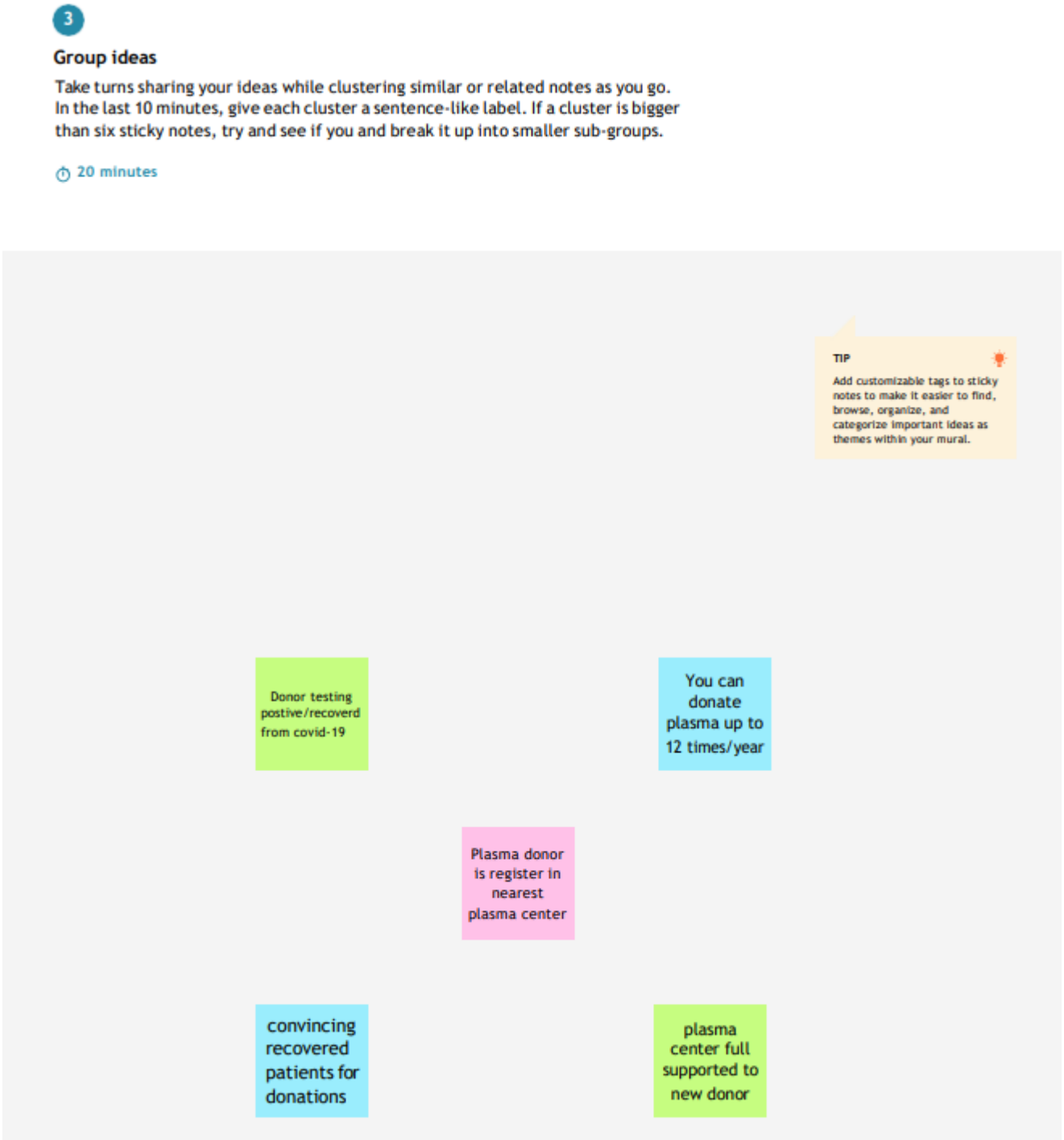


2. Brainstorm

It defines all ideas that comes to the mind that address our problem statement.

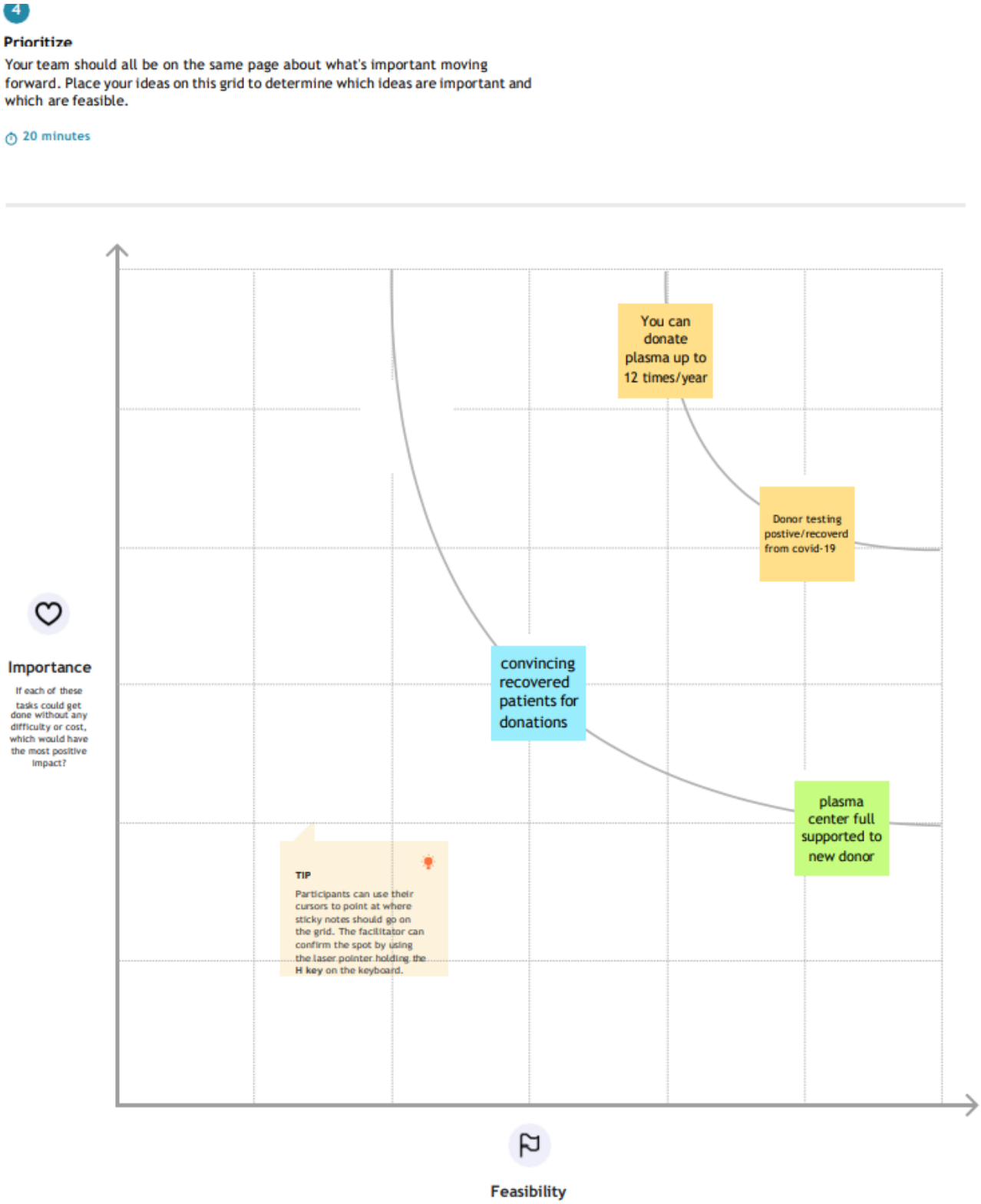
3. Group ideas

The ideas shared are clustered together based on their similarities. If a cluster isbigger than six sticky notes, it is broken up into smaller sub-groups.



4. Prioritize

The categorized ideas are prioritized based upon the importance and the feasibility.



3. Proposed Solution

1. Problem Statement (Problem to be solved)

Plasma donors and patients find it difficult to search for and contact each other at the right time. There is a demand for an ultimate solution that facilitates easier methods of communication, which as a result can help save people's lives.

2. Idea / Solution description

To develop a web application that stores donors' information in the database and that information is shown to the patients nearby. The donor is then notified upon aplasma request from a patient.

3. Novelty / Uniqueness

Since this is a web application, it is platform independent and can be accessed on any device, anytime, anywhere. The app updates the data real-time and notifies users quickly to help people in emergency. It also includes a chatbot to resolve queriesregarding plasma donation.

4. Social Impact / Customer Satisfaction

Donors have the satisfaction of helping someone in need and saving their life. Patients feel grateful and happy about receiving plasma at the right time. This as a result will help resolve the increasing demand for plasma across the country.

5. Business Model (Revenue Model)

Since the app is intended to help people in medical emergencies, it is not fair to charge patients/donors. However, hospitals or blood banks using the application might be charged on a monthly basis or pay as you go model.

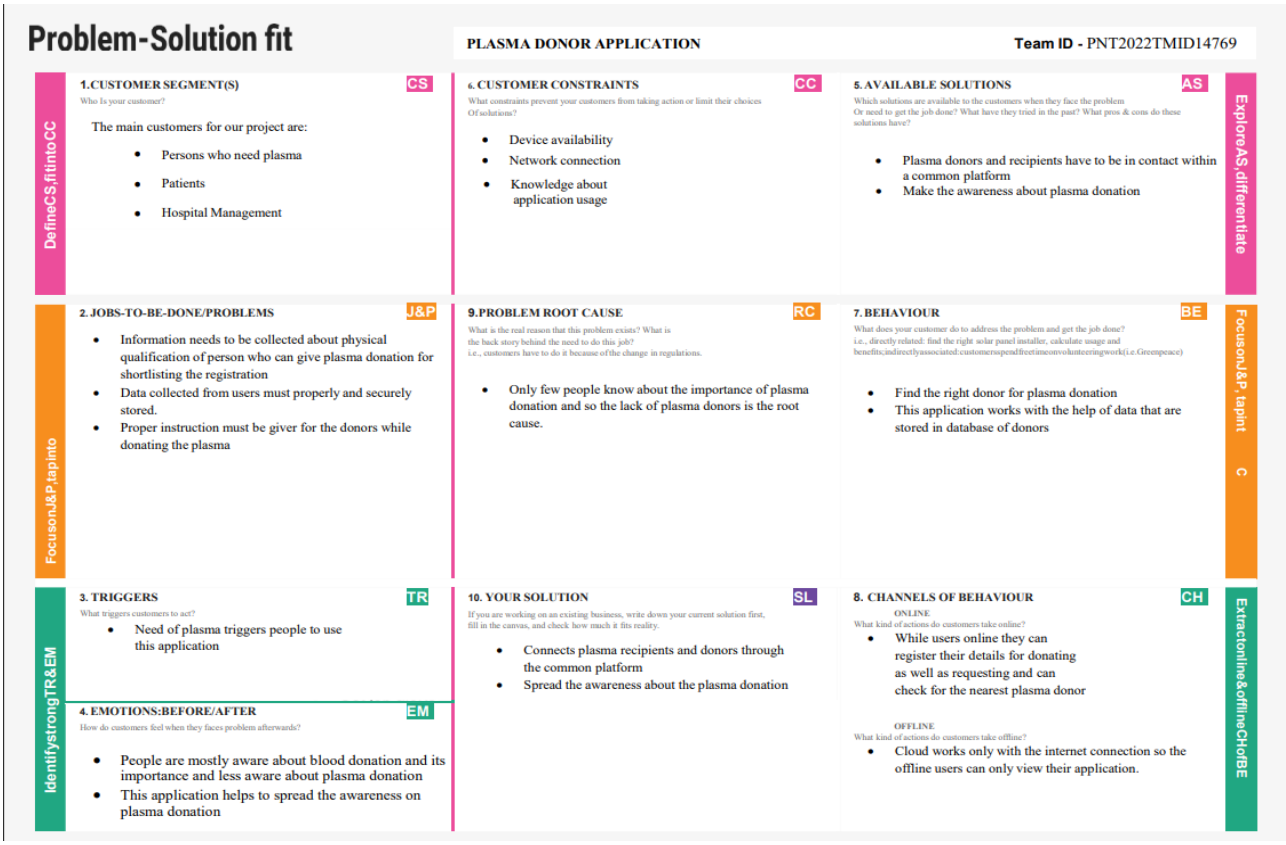
6. Scalability of the Solution

Since this is a containerized application which is to be deployed on Kubernetes cluster, the scalability of the application is guaranteed to a great extent. Also the IBM Db2 database, which stores the entire application data, supports elastic scaling up to 128 machines in multicloud and hybrid environments.

3.4 Problem Solution Fit

Problem solution fit defines the following,

- Defines Customer Segment fit into customer constrains
- Explore Available resources and differentiate
- Focus on Job-to-be-done & problems, tap into behaviour, understand root cause
- Identify strong Triggers and emotion, channel of behaviour and your solutions



CHAPTER 4

REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENTS

Functional requirements are defined as a set of attributes that describe external systemoutput behavior that is:

- Consistent
- Unambiguous
- Non-redundant
- Non-contradictory

The functional requirements for the proposed system are:

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through our website
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Email alert	Using SendGrid to notify users
FR-4	Eligibility of Donor	Proper medical information must be provided by Donor
FR-5	Validation of Patient	Plasma request must be validated properly
FR-6	Handle User Queries	Using a Chatbot for FAQs
FR-7	Donor Profile	Maintain and display donor's medical andcontact information

4.2 NON-FUNCTIONAL REQUIREMENTS

Non-functional requirement describes not what the system will do, but how the system will do it, for example, system performance requirements, system External interface requirements, design specifications and characteristics of software quality.

The system's related non-functional requirements are stated below:

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Anyone should be able to use the product effortlessly
NFR-2	Security	Sensitive details must be store securely (like medical information)
NFR-3	Reliability	Application must be usable even with lower bandwidth
NFR-4	Performance	Application must be able to perform up to at least10,000 request per second
NFR-5	Availability	Application must be available for 24/7
NFR-6	Scalability	Application must be capable of handling hugenumber of users

CHAPTER 5

PROJECT DESIGN

5.1 Data flow diagram

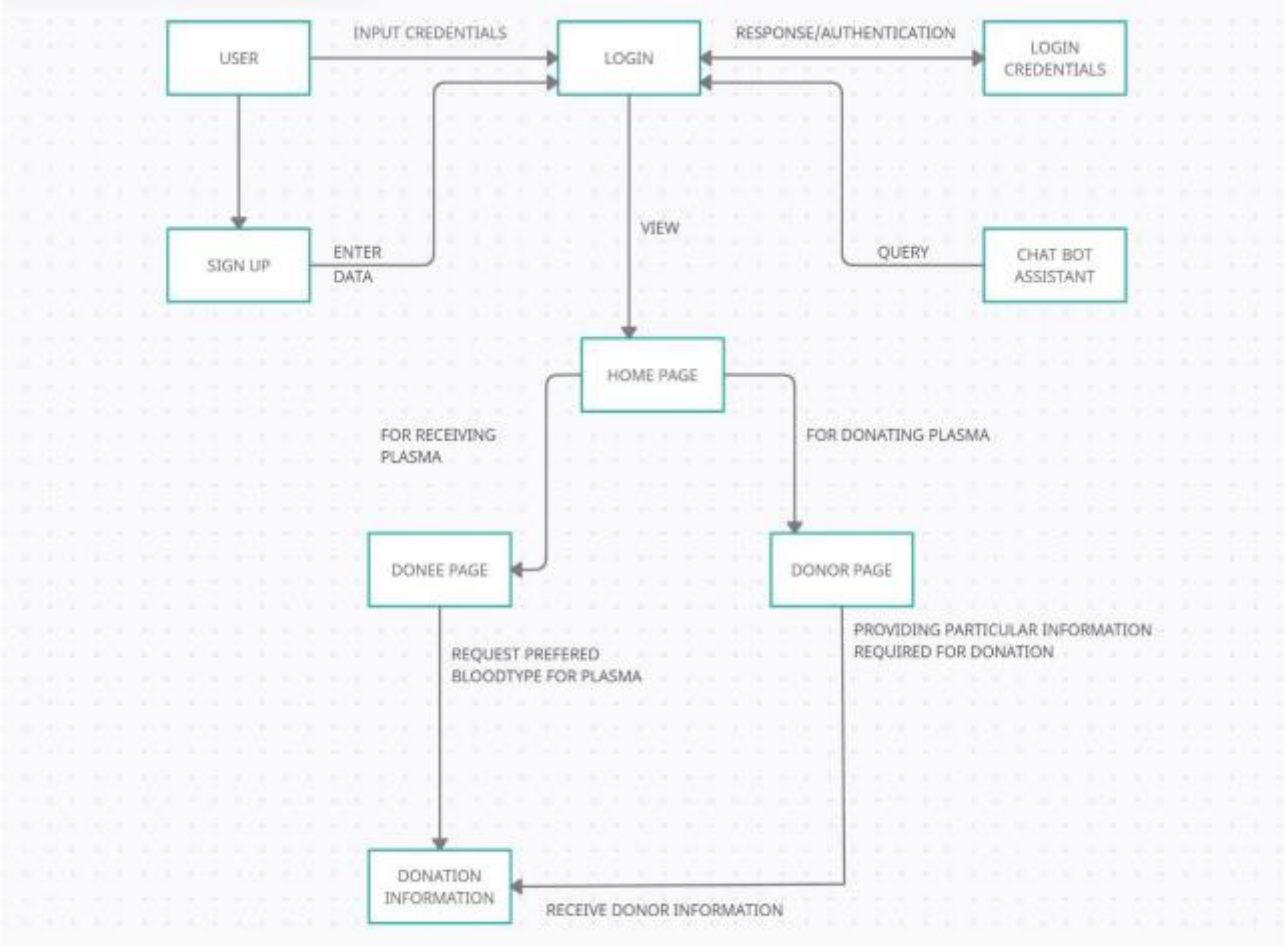
A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.

The DFD belongs to structured-analysis modelling tools. Data Flow diagrams are very popular because they help us to visualize the major steps and data involved in software- system processes.

Characteristics of DFD

- It helps us to understand the functioning and the limits of a system.
- It is a graphical representation which is very easy to understand as it helps visualizecontents.
- Data Flow Diagram represent detailed and well explained diagram of systemcomponents.
- It is used as the part of system documentation file.
- Data Flow Diagrams can be understood by both technical and nontechnical personbecause they are very easy to understand.

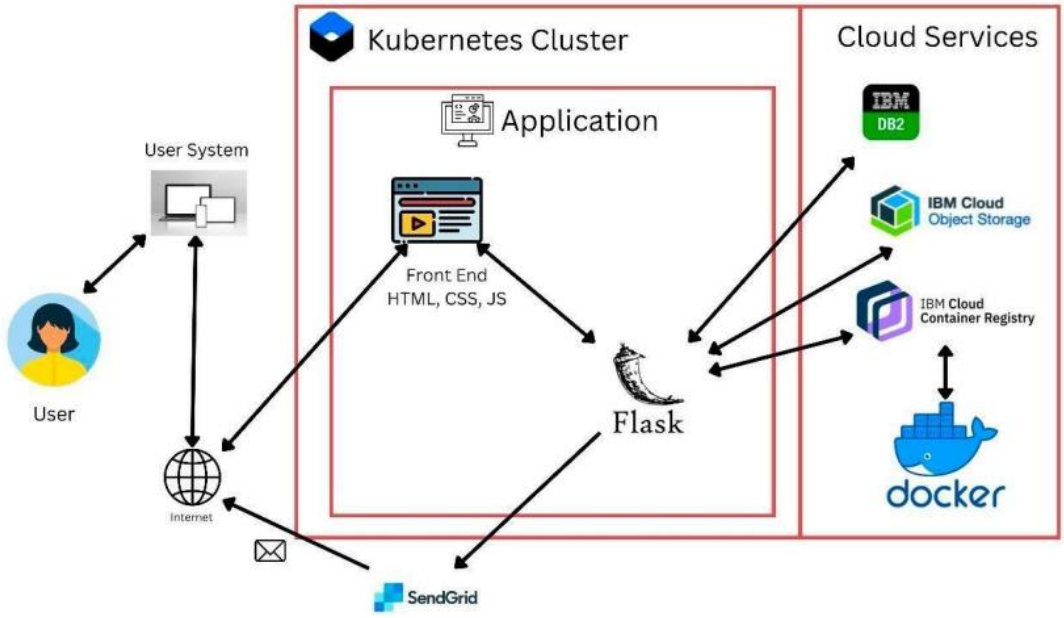
Data Flow Diagram:



5.2 Solution & Technical Architecture

Solution architecture is a complex process – with many sub-processes – that bridgesthe gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software toproject stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, anddelivered.



5.3 User Stories

A user story is an informal, general explanation of a software feature written from theperspective of the end user. Its purpose is to articulate how a software feature will provide value to the customer.

It's tempting to think that user stories are, simply put, software system requirements. But they're not. A key component of agile software development is putting people first, and auser story puts end users at the center of the conversation. These stories use non-technical language to provide context for the development team and their efforts. After reading a user story, the team knows why they are building, what they're building, and what value it creates.

User stories are one of the core components of an agile program. They help provide a user-focused framework for daily work — which drives collaboration, creativity, and a betterproduct overall.

User Type	Functional Requirement (Epic)	User Story No.	User Story / Task	Acceptance criteria	Priority	Release
Donor/ Patient	Registration	USN1	As a user, I can register for the application by entering my email, password, and confirming password.	I can properly register my useraccount	High	Sprint-1
		USN2	As a user, I willreceive confirmation email once	I can receive confirmation email upon registration	High	Sprint-1
		USN3	As a user, I can register for the application through phone number and log in using it	I can register using my mobile number to access my account	Medium	Sprint-2
	Login	USN4	As a user, I can log into the application using registered email & password	I can access	High	Sprint-1

	Dashboard	USN5	As a user, I want toenter/update my medical and contact information	I can edit my details on my profile settings	Medium	Sprint-2
	Chatbot	USN6	As a user, I can ask questions to the chatbot	I can resolve my doubts regarding plasma donation	Low	Sprint-4
Donor	Receive Alerts	USN7	As a donor, I want to receive immediate alerts upon requests frompatient	I can receive the alerts on my registered email or phone number	High	Sprint-3
Patient	Request Plasma	USN8	As a patient, I want a list of donors	I can see the numberof donors available	High	Sprint-2
		USN9	As a patient, I want to sort out donor list	I can filter donors of matching blood groups	Medium	Sprint-4
		USN10	As a patient, I want to request for plasma	I can alert matchingdonors	High	Sprint-3

CHAPTER 6

PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

The planning of users stories or tasks, categorized into sprints along with story points based on the priority of the task are all consolidated in the given table.

Sprint	Functional Requirement (Epic)	User Story No.	User Story / Task	Story Points	Priority	Team Members
Sprint -1	Registration	USN-1	As a user, I canregister for the application byentering myemail, password, and confirming my password.	3	High	Gokul Kavin S
Sprint -1		USN-2	As a user, Iwill receive confirmation email once application	2	High	Harish Kumar R B

Sprint -2		USN -3	As a user, I can register for the application through phone number and log in using it	3	Medium	Kavi Bharathi S
Sprint -1	Login	USN -4	As a user, I can log into the application using my registered email & password	2	High	Digeeshraj S
Sprint -2	Dashboard	USN -5	As a user, I want to enter/update my medical and contact information	3	Medium	Gokul Kavin S, Harish Kumar R B
Sprint -4	Chatbot	USN -6	As a user, I can ask questions to the chatbot	1	Low	Kavi Bharathi S Digeeshraj

Sprint -3	Receive Alerts	USN -7	As a donor, I want to receive immediate alerts upon requests from patient	5	High	Harish Kumar R B
Sprint -2	Request Plasma	USN -8	As a patient, I want a list of donors	5	High	Kavi Bharathi S
Sprint -4		USN -9	As a patient, I want to sort outdonor list	5	Medium	Gokul Kavin S
Sprint -3		USN -10	As a patient, I want to request for plasma	5	High	Harish Kumar R B

6.2 Sprint Delivery Schedule

The sprints to be completed are assigned a duration of six days each and the start andend dates are determined in the following tabulation.

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint EndDate (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	7	6 Days	24 Oct 2022	29 Oct 2022	0	08 Nov 2022
Sprint-2	11	6 Days	31 Oct 2022	05 Nov 2022	0	13 Nov 2022
Sprint-3	10	6 Days	07 Nov 2022	12 Nov 2022	5	14 Nov 2022
Sprint-4	6	6 Days	14 Nov 2022	19 Nov 2022	6	18 Nov 2022

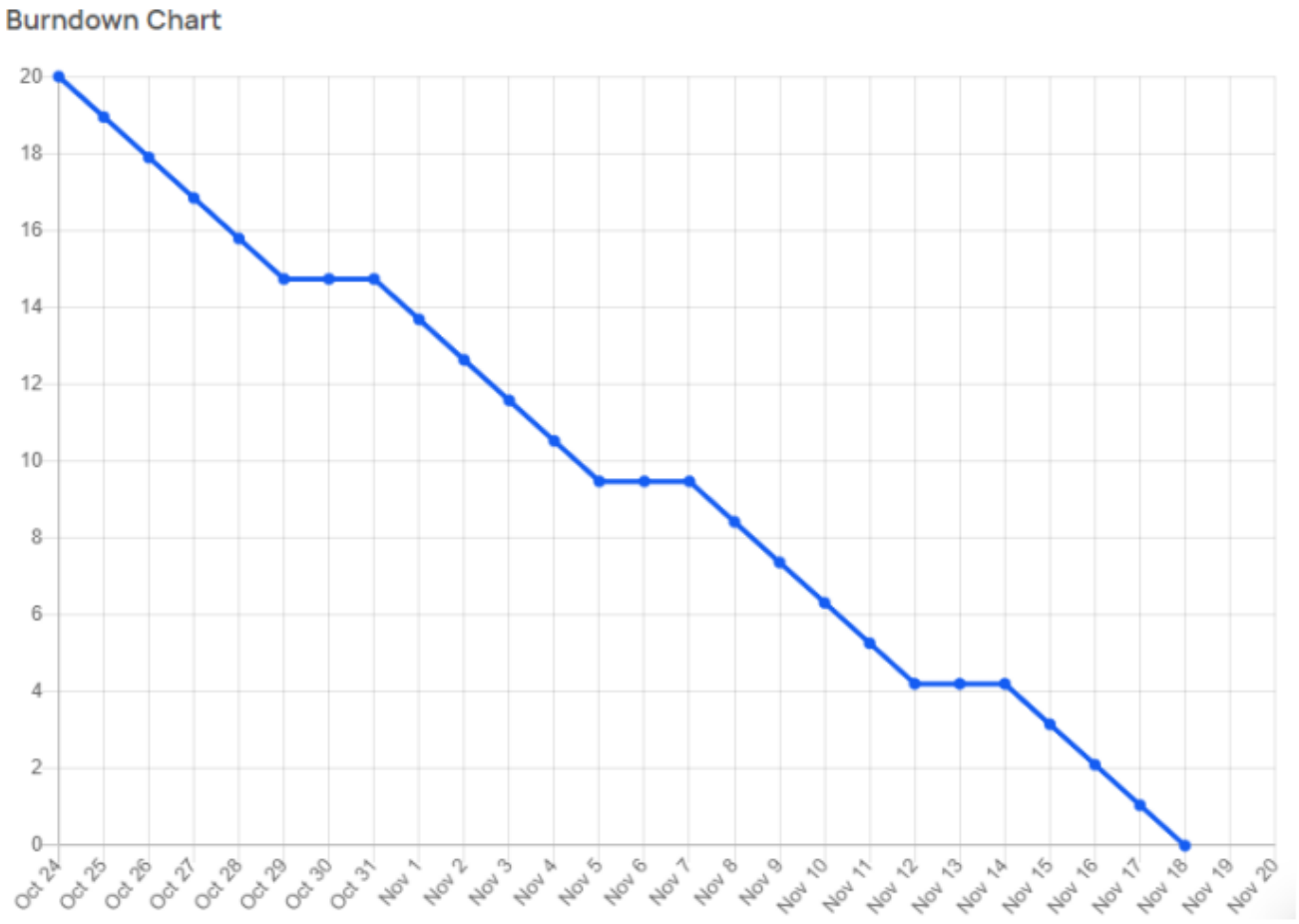
6.3 Reports from

JIRAVelocity Report:

Average Velocity = AV = (7 + 11 + 10 + 6) / 24 = 1.4167

AV=20/6=3..333…
Sprint 1(AV)= 3.34
Sprint 2(AV)= 3.34
Sprint 3(AV)= 3.34
Sprint 4(AV)= 3.34

Burndown chart:

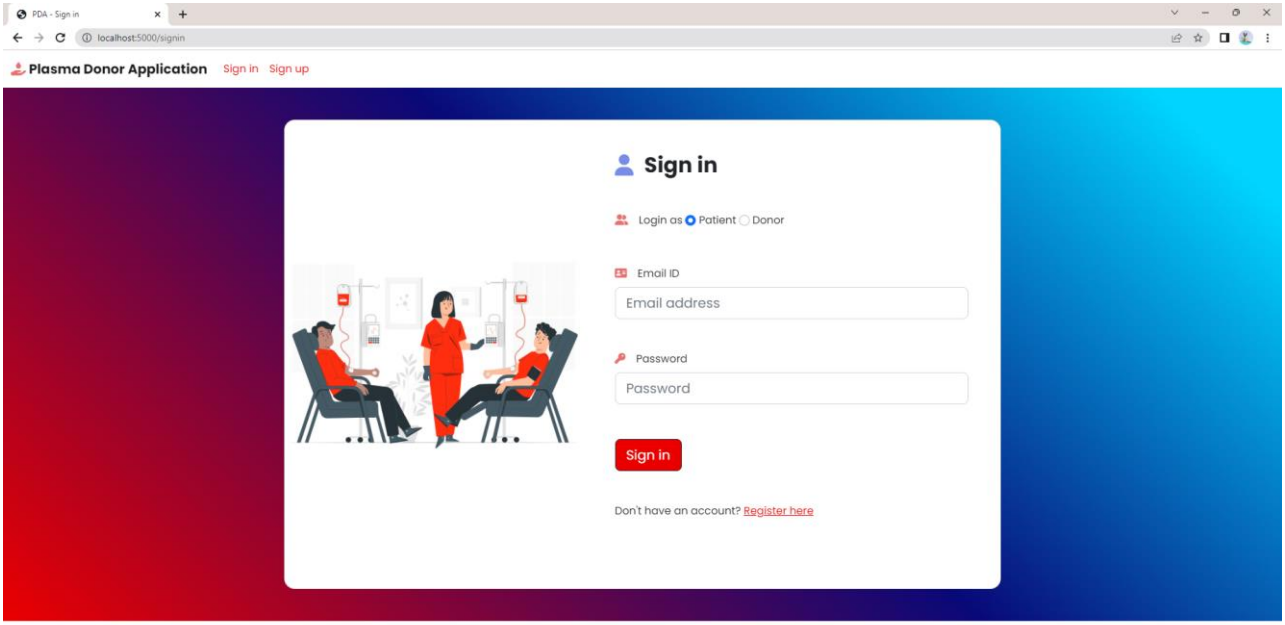


CHAPTER 7

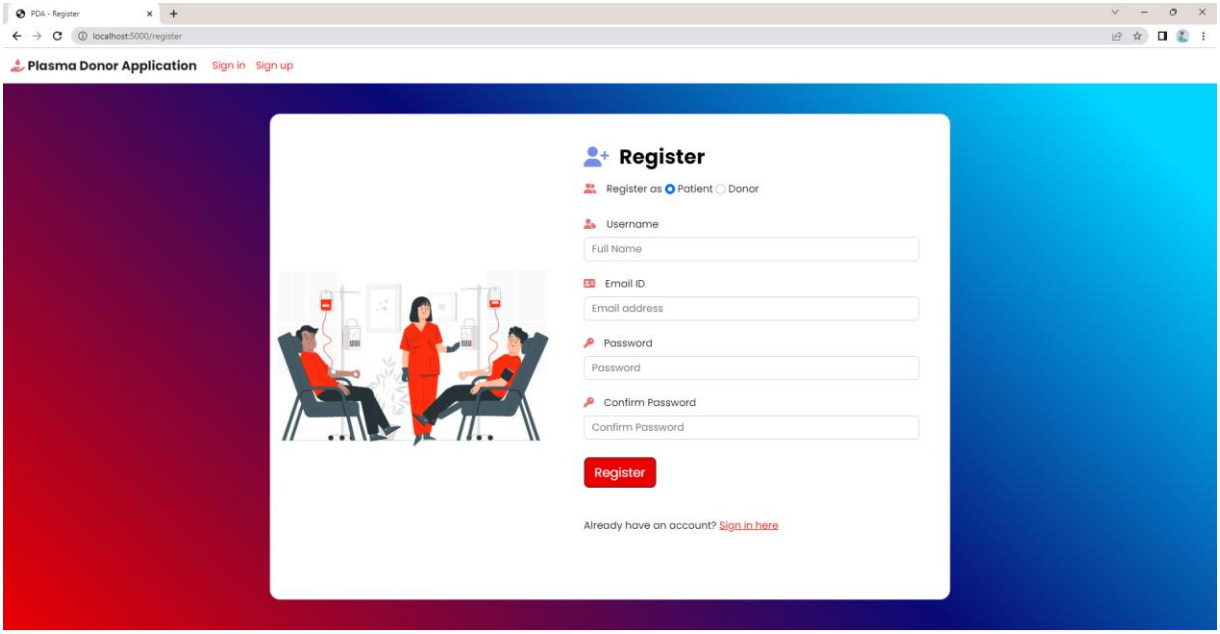
CODING & SOLUTIONING

7.1 User Registration and Sign in

Users can register themselves as donors or patients either using their email address or phone number as their unique user identity. If users wish to be both a donor and a patient, they can maintain two different profiles with the same identity and would still be able to switch between profiles and donate or request plasma respectively. The users registered with their email will also receive a confirmation email upon registration.



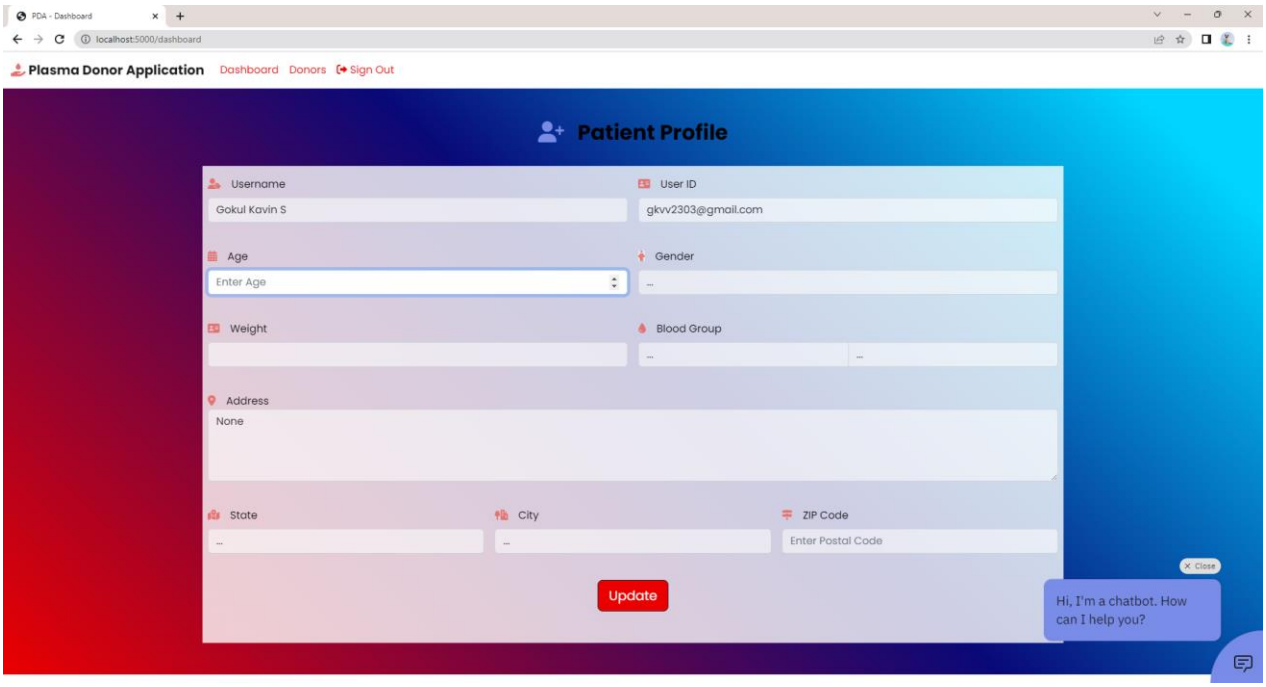
(User Login)



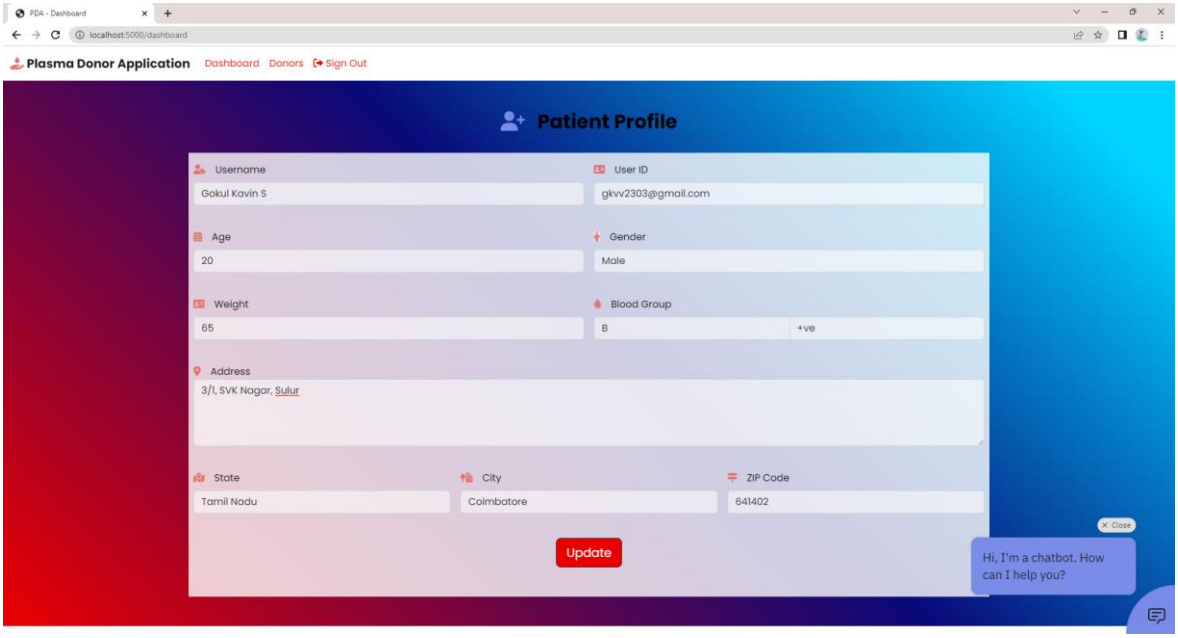
(User Registration)

7.2 User Dashboard

Users will see their registered medical and contact information in their profile dashboard if they already filled them up or they are requested to fill those details in order torequest or donate plasma.



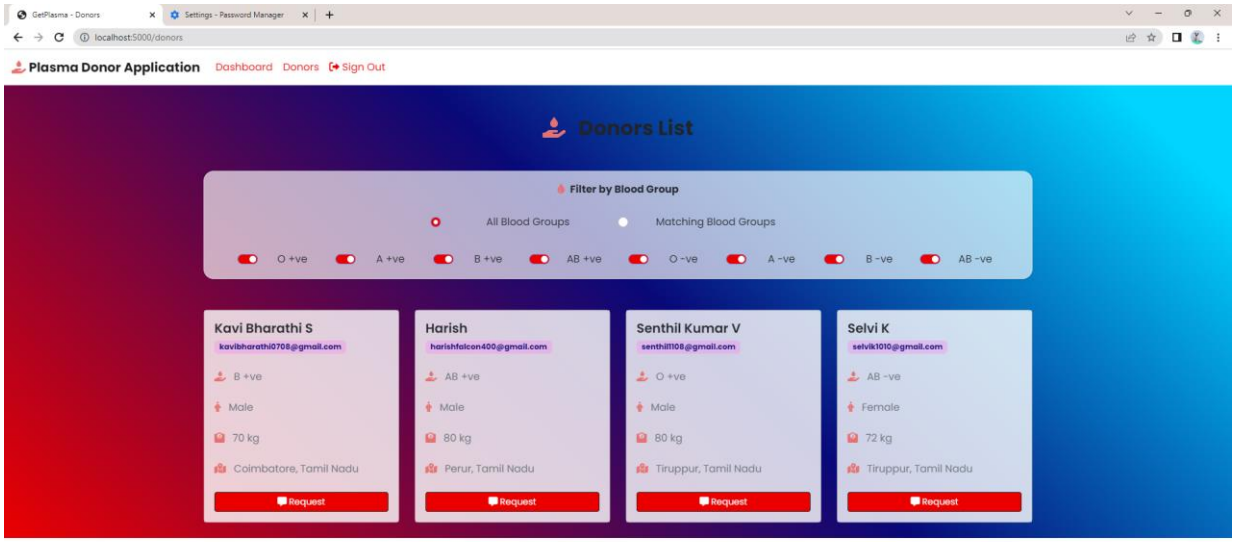
(New user's dashboard)



(The dashboard with all details of the user which can be updated)

7.3 Donors List

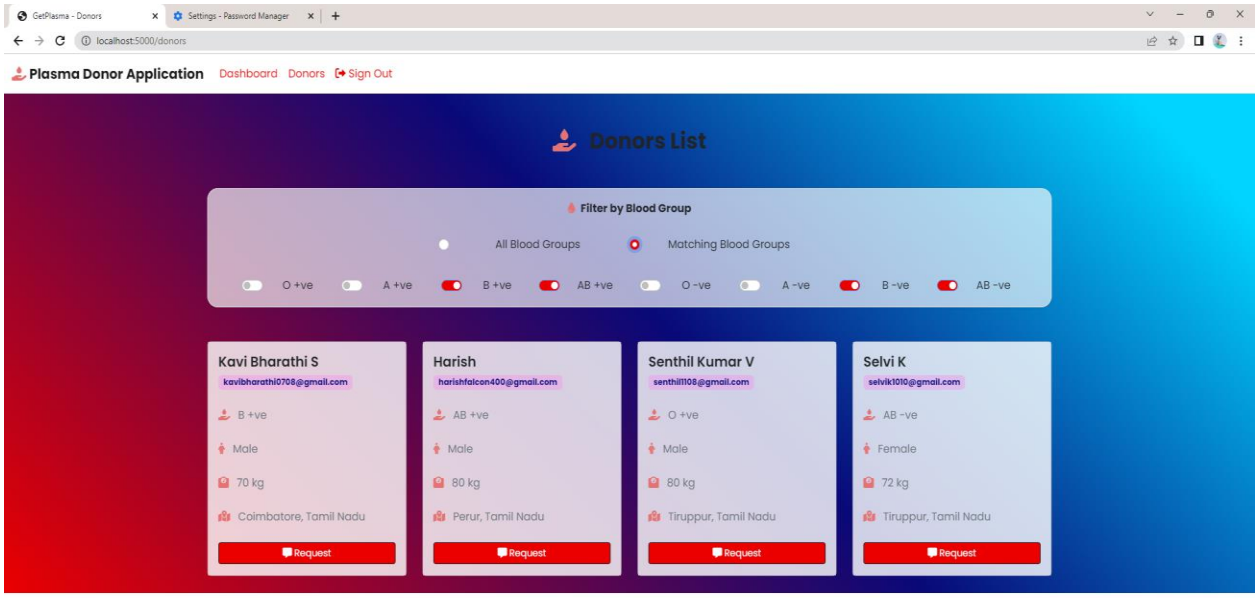
This is the most crucial part of the application where the patients can view thecomplete list of donors available in the application.



(Complete list of donors)

7.4 Filter for Donors List

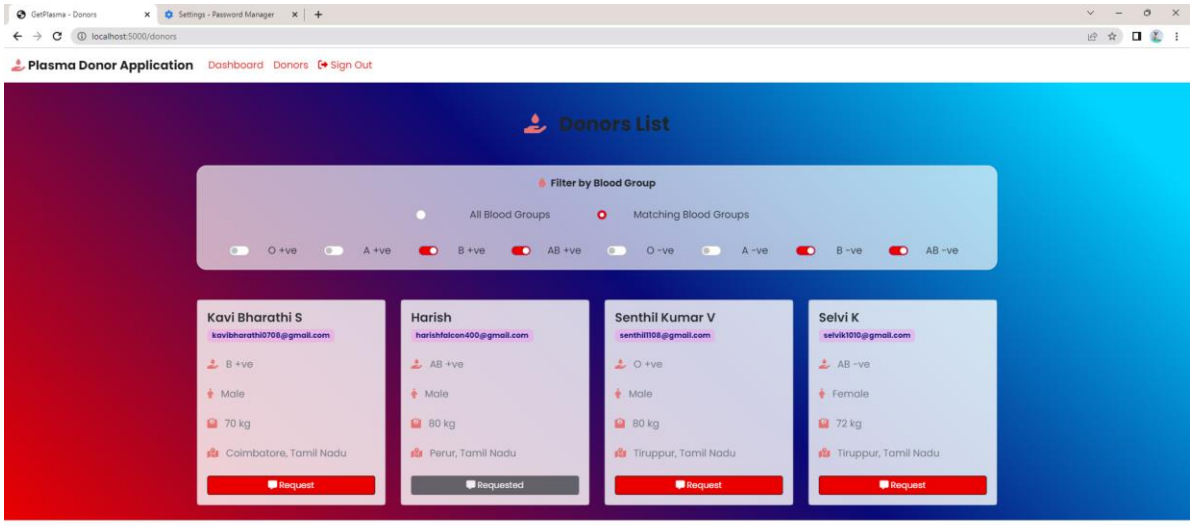
Patients can filter the list of donors based on a radio toggle where they can switch between all donors and those who have a matching blood group to donate to the patient. Theycan also filter as per their wish using the custom toggles below the radio buttons and send requests to the donors they would like to get plasma donation from.



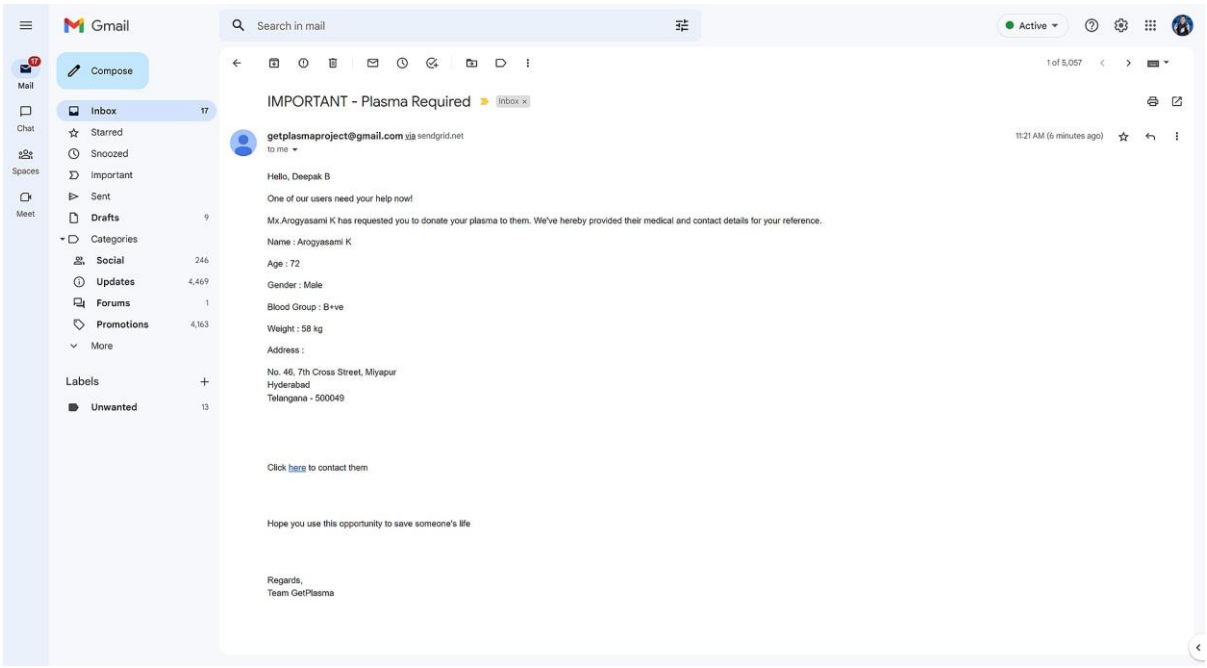
(Filter for donor list)

7.5 Email Alerts

Donors will receive an email alert upon getting a request from a patient if theyregistered with email address as their user identity.



(Patient requesting a donor registered with email)



(Donor getting an email alert)

7.6 Database Schema

The project consists of two tables in the database, each dedicated for two types of users in the application namely donors and patients. Following is the schema definition of those tables in the IBM Db2 Database.

Donor Table:

Table definition

DONOR

Name	Data type	Nullable	Length
UID	VARCHAR	N	50
PWD	VARCHAR	N	50
UNAME	VARCHAR	N	50
UAGE	SMALLINT	Y	
GENDER	VARCHAR	Y	15
WEIGHT	SMALLINT	Y	
BGROUP	VARCHAR	Y	3
RH	CHAR	Y	3
ADDR	VARCHAR	Y	500
CITY	VARCHAR	Y	50
ST	VARCHAR	Y	50
ZIP	INTEGER	Y	

Patient Table:

Table definition

PATIENT

Name	Data type	Nullable	Length
UID	CHAR	N	100
PWD	CHAR	N	100
UNAME	CHAR	N	100
UAGE	SMALLINT	Y	
GENDER	VARCHAR	Y	15
WEIGHT	SMALLINT	Y	
BGROUP	VARCHAR	Y	3
RH	CHAR	Y	3
ADDR	VARCHAR	Y	500
CITY	VARCHAR	Y	50
ST	VARCHAR	Y	50
ZIP	INTEGER	Y	

CHAPTER 8

TESTING

8.1 Test Cases

These are the test cases that were used the testing of the application as tabulated below.

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Commnets	TC for Automation(Y/N)	BUG ID	Executed By
RegiserPage_TC_OO1	UI	Register page	Verify user is able select user type for registration type		1.Enter URL and click go 2.Go to register page 3.Click on Register as dropdown button 4.Verify if user can select between Donor/Patient type	Choose Donor or Patient in dropdown	Dropdown should display and user can choose an option	Working as expected	Pass	Steps are clear to follow	N		Deepak B
RegisterPage_TC_OO2	UI	Register page	Verify the user can select ID type between email and phone number		1.Enter URL and click go 2.Go to register page 3.Click on the dropdown button attached to Email/Phone number input field 4.Verify if user can select between email and phone number type	Select between email or phone number type in dropdown	Dropdown should display and user can choose an option	Working as expected	Pass	Steps are clear to follow	N		Deepak B
RegisterPage_TC_OO3	Functional	Register page	User password entries are validated to match each other	Email ID/Phone Number	1.Enter URL and click go 2.Go to register page 3.Enter user type and user id details 4.Enter password in enter password and confirm password input fields	Password: Plasma@123	User should be able to click the register button or not depending upon the password matching status	Working as expected	Pass	Steps are clear to follow	N		Deepak B
RegisterPage_TC_OO4	Functional	Login page	Verify user can register to the application	Email ID/Phone Number, User Name and a new password	1.Enter URL and click go 2.Go to register page 3.Enter user type and user id details 4.Enter password in enter password and confirm password input fields 5. Click register	Register as: Donor Full Name: Deepak B Email: deepak22@gmail.com Password: Plasma@123 Confirm Password: Plasma@123	Application should register their data and navigate them to sign in page	Working as expected	Pass	Steps are clear to follow	N		Deepak B
LoginPage_TC_OO1	UI	Login page	Verify user is able to see the Login page upon opening the application		1.Enter URL and click go		App should redirect to login page if user is not signed in yet	Working as expected	Pass	Steps are clear to follow	N		Deepak B
LoginPage_TC_OO2	Functional	Login page	Verify user is able to log into application with valid credentials	Registered user ID and password	1.Enter URL and click go 2.Go to login page 3.Enter valid credentials 4.Click Sign in	Sign in as: Donor Email: deepak22@gmail.com Password: Plasma@123	Application should authenticate user navigate them to their dashboard	Working as expected	Pass	Steps are clear to follow	N		Deepak B
LoginPage_TC_OO3	Functional	Login page	Verify user is not allowed to log into application with invalid credentials		1.Enter URL and click go 2.Go to login page 3.Enter invalid credentials 4.Click Sign in	Sign in as: Donor Email: deepak22@gmail.com Password: Plasma@456	Application should show 'Incorrect email or password ' validation message.	Working as expected	Pass	Steps are clear to follow	N		Deepak B
LoginPage_TC_OO4	UI	Login page	Verify user is able select user type to sign in		1.Enter URL and click go 2.Go to login page 3.Click on login as dropdown button 4.Verify if user can select between Donor/Patient type	Choose Donor or Patient in dropdown	Dropdown should display and user can choose an option	Working as expected	Pass	Steps are clear to follow	N		Deepak B
Dashboard_TC_OO1	Functional	Dashboard	Verify user is able to enter or update their details	Signed in to the application	1.Enter URL and click go 2.Sign in with registered account 3.Enter details required 5.Click update	Username: Arogyasami K User ID: 9342446986 Age: 72 Gender: Male Weight: 58 Blood Group: AB+ve Address: No. 46, 7th Cross Street,Miyapur State: Telangana City: Hyderabad ZIP Code: 500049	User details should be properly updated to the database and be fetched and displayed again in the page	Working as expected	Pass	Steps are clear to follow	N		Deepak B
Dashboard_TC_OO2	Functional	Dashboard	Verify donors can upload medical certificate	A medical fitness certificate file	1.Enter URL and click go 2.Sign in with registered account 3.Enter details required 4. Upload medical certificate 5.Click update	Upload medical certificate file as a valid image (.png, .jpg, etc.) or a .pdf file	Application should upload certificate to object storage and update it in the page upon submission.	Working as expected	Pass	Steps are clear to follow	N		Deepak B
DonorsPage_TC_OO4	UI	Donors Page	Verify patients can see the donors page		1.Enter URL and click go 2.Sign in with registered account 3.Click Donors Link in navigation bar	Click donors link in navbar	Patients can see the list of donors available in the app	Working as expected	Pass	Steps are clear to follow	N		Deepak B
DonorsPage_TC_OO4	Functional	Donors Page	Verify patients can filter donors list		1.Enter URL and click go 2.Sign in with registered account 3.Click Donors Link in navigation bar 4.Filter donors list by clicking the radio buttons and toggles in the filter menu	Use filters above donors list	Patients can filter donors list based on their blood groups	Working as expected	Pass	Steps are clear to follow	N		Deepak B
DonorsPage_TC_OO4	Functional	Donors Page	Verify patients can request donors for plasma	Preregistered with medical and contact details	1.Enter URL and click go 2.Sign in with registered account 3.Click Donors Link in navigation bar 4.Click request button under each donor details card	Click request button	Patients can click the button and donors get immediate email/whatsapp alerts upon the request	Working as expected	Pass	Steps are clear to follow	N		Deepak B
SignOut_TC_OO4	Functional	Sign out	Verify users can sign out of the application		1.Enter URL and click go 2.Sign in with registered account 3.Perform any desired actions 4. Click sign out in navigation bar	Click sign out in navbar	Users can safely sign out and terminate the signed in session	Working as expected	Pass	Steps are clear to follow	N		Deepak B

8.2 User Acceptance Testing

The user acceptance testing was performed throughout the entire application, using the test cases defined in the above table and the application tend to cope up with all of them and provide proper output or raise error alerts upon making any invalid input. Any errors or bugs identified during the testing were resolved before each sprint was delivered.

CHAPTER 9

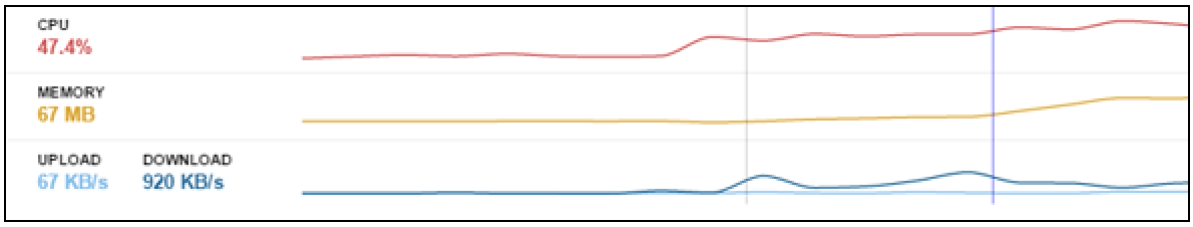
RESULTS

9.1 Performance Metrics

The performance metrics that were considered for the testing are

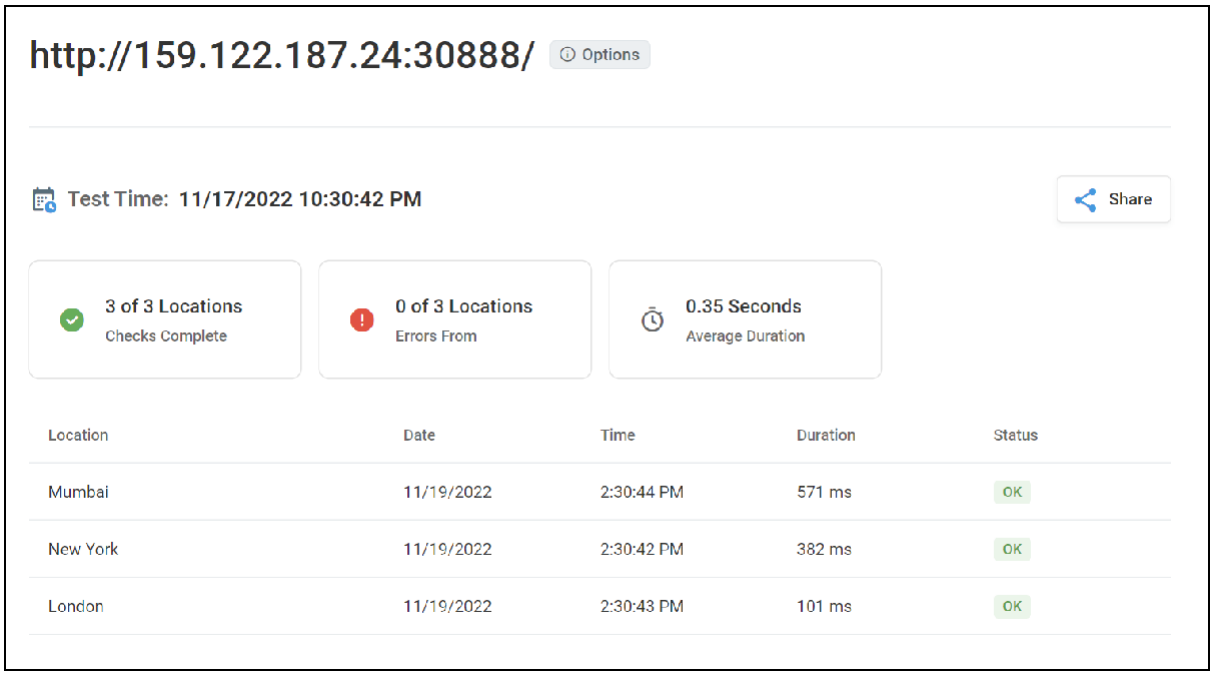
- CPU Utilization
    - It solely depends upon the CPU itself and based on the tests, the utilization ofCPU is almost in terms of negligible amounts for a high end processor.

- Memory Utilization
    - The memory utilization of the web application ranges between
        - 25MB to 90MB (as tested on Google Chrome)
        - 20MB to 95MB (as tested on Mozilla Firefox)



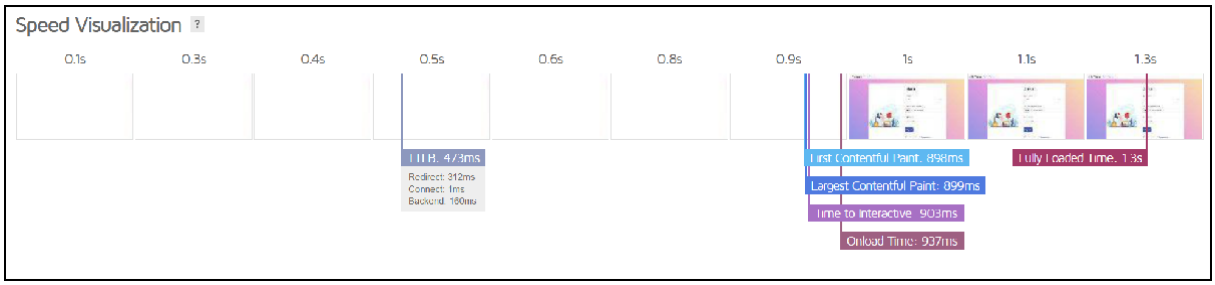
Waterfall chart based on the test performed on GTMetrix

- Response times
    - As tested on dotcom-tools, here's a summary of response times from threedifferent zones of the world namely New York, London and Mumbai

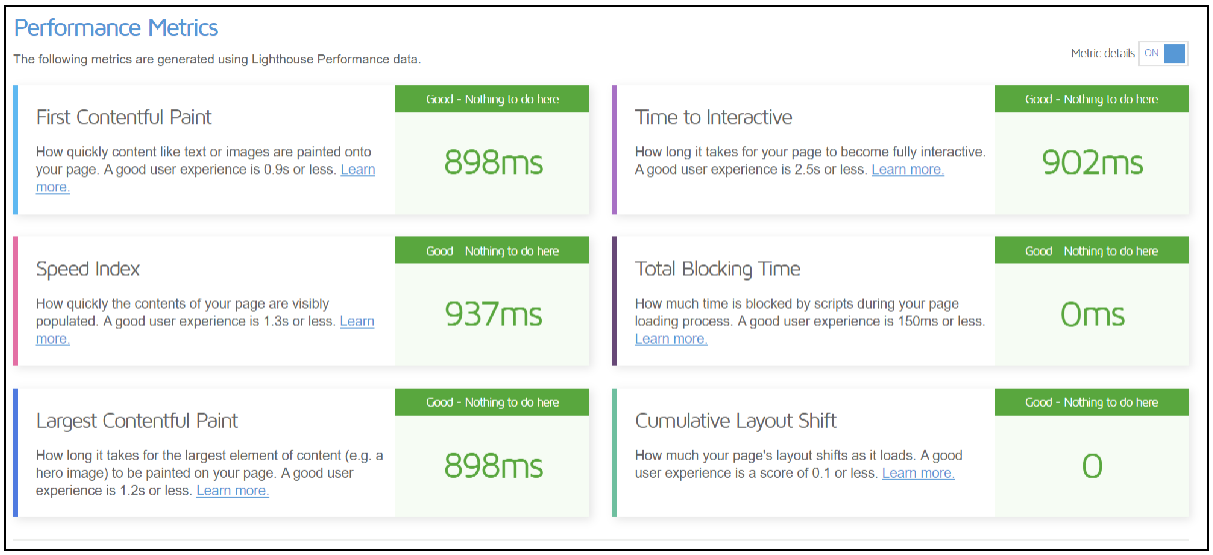


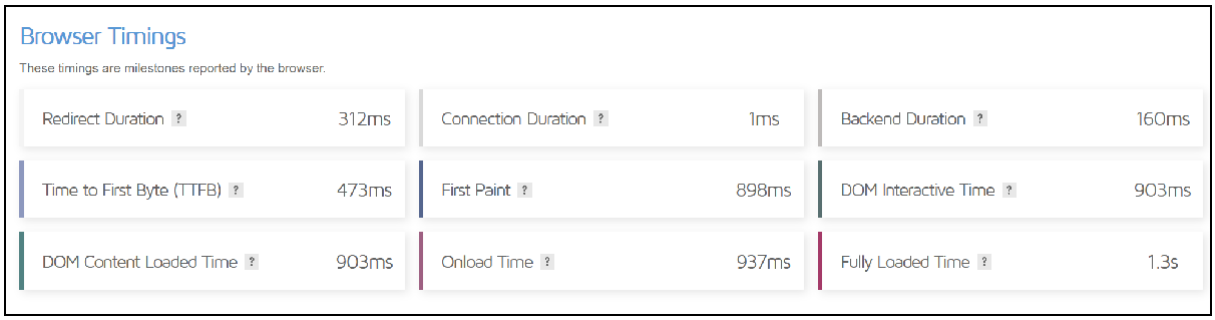
- Average Load time
    - Based on the tests performed on various cellular data networks with speeds ranging from 3Mbps to 25Mbps, the average load of the page ranges between1s to 5s, depending upon the connection speed

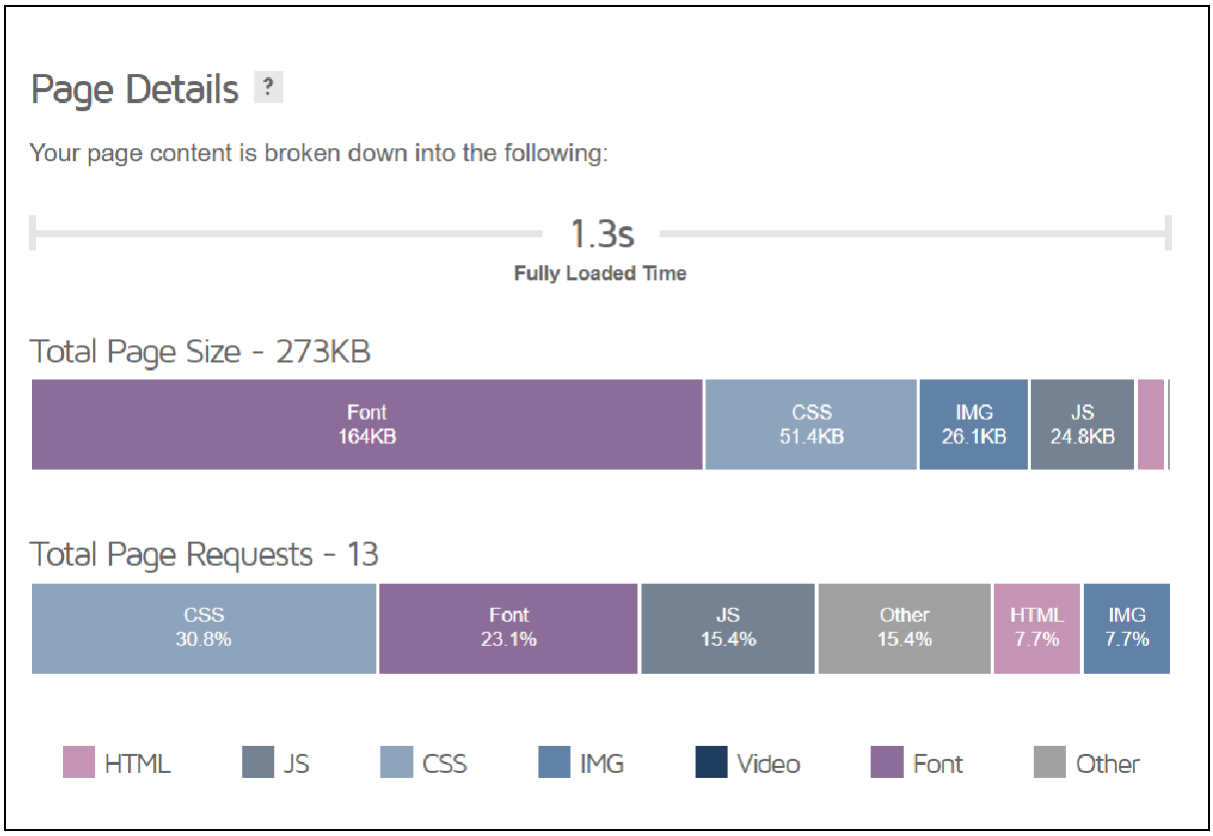
    - Here's a report from GTMetrix to show the page loading time



- Here are other miscellaneous, yet important performance metrics as tested onGTMetrix


Performance Metrics
The following metrics are generated using Lighthouse Performance data.
Metric details ON
First Contentful Paint
How quickly content like text or images are painted onto your page. A good user experience is 0.9s or less. Learn more.
Good - Nothing to do here
898ms
Time to Interactive
How long it takes for your page to become fully interactive. A good user experience is 2.5s or less. Learn more.
Good - Nothing to do here
902ms
Speed Index
How quickly the contents of your page are visibly populated. A good user experience is 1.3s or less. Learn more.
Good Nothing to do here
937ms
Total Blocking Time
How much time is blocked by scripts during your page loading process. A good user experience is 150ms or less. Learn more.
Good Nothing to do here
0ms
Largest Contentful Paint
How long it takes for the largest element of content (e.g. a hero image) to be painted on your page. A good user experience is 1.2s or less. Learn more.
Good - Nothing to do here
898ms
Cumulative Layout Shift
How much your page's layout shifts as it loads. A good user experience is a score of 0.1 or less. Learn more.
Good - Nothing to do here
0


Browser Timings
These timings are milestones reported by the browser.
Redirect Duration 312ms
Connection Duration 1ms
Backend Duration 160ms
Time to First Byte (TTFB) 473ms
First Paint 898ms
DOM Interactive Time 903ms
DOM Content Loaded Time 903ms
Onload Time 937ms
Fully Loaded Time 1.3s


Page Details
Your page content is broken down into the following:
1.3s
Fully Loaded Time
Total Page Size - 273KB
Font 164KB
CSS 51.4KB
IMG 26.1KB
JS 24.8KB
Total Page Requests - 13
CSS 30.8%
Font 23.1%
JS 15.4%
Other 15.4%
HTML 7.7%
IMG 7.7%
HTML
JS
CSS
IMG
Video
Font
Other

CHAPTER 10

ADVANTAGES & DISADVANTAGES

ADVANTAGES

- Easy to use interface.
- It will help people to find plasma easily.
- Easy to find and filter donors with matching blood groups.
- Patients can verify donor's credibility by checking their medical certificate/report.
- Available 24/7 as the application is deployed on the reliable IBM Kubernetes Cluster.
- User details are stored securely in IBM Db2 Database.
- The application can be scaled to handle numerous amount of users.
- It includes a chatbot to resolve queries regarding plasma donation.
- Easy to communicate with the donee or donor.
- Immediate notification upon request from the patients.

DISADVANTAGES

- Users need to have pre-registered account in order to request or donate plasma.
- Users registered with phone number have to be a WhatsApp user in order to receivealerts from the application.
- Donors might miss the alerts sent from the application as there is no provision to check the receival of the alert by them in the application.

CHAPTER 11

CONCLUSION

In recent days, it is noticed the increase in plasma request posts on social media such as Twitter, WhatsApp, and Instagram. There are many people across the world interested in donating blood when there is a need, but those donors don’t get immediate alerts for those requests. This is because that there is no platform to directly connect donors with patients.

Thus, we hope our project contributes to solving a major crisis in the society and help save people's lives. It provides an easy way of communicating with the donors upon receiving donation requests from the patients. It is a useful tool to find matching donors, verify their medical fitness by viewing their medical fitness certificate from any approved medical organization, and then send request only if patients believe that the donor is eligible to get plasma from. We also ensure sheer performance and scalability of the application to handle mutliple users as all the tools and technologies used to develop the application are of industry and enterprise standards, providing a reliable performance.

Donate Plasma, Save Lives.

CHAPTER 12

FUTURE

SCOPE

In the future, we would like to extend this project to blood banks and hospitals so that they too can take part in this initiative to save lives by providing massive amounts of data about the available blood groups and the needy patients to the application. Additionally, those organizations can be charged on a pay as you go model, thus creating a business model forthe application.

Also, we can implement blood donations feature to the app as an additional feature as plasma and blood donations are almost related to each other and patients affected with diseases such as Dengue might be in need of both of them. So, providing details of both blood and plasma donors would be a greate helping hand to those users.

For donors registered with their phone number, the alerts are currently sent via WhatsApp. This can be extended to other messaging platforms such as Telegram, Signal, iMessage, Google Chat, etc. as alternatives to users who don't have a WhatsApp account. Apart from these platforms, an SMS alert can be sent parallelly to ensure that the donors don't miss such important alerts due to any connectivity issues. These are the current plans for future enhancements and we would like to hear from the users of the application to know exactly what they need from the application.

CHAPTER 13

APPENDIX

GitHub & Project Demo Link

Project GitHub Repository

https://github.com/IBM-EPBL/IBM-Project-9445-1659007266

Project Live Demo Link
http://159.122.187.24:30888/

Project Demo Video Link
https://drive.google.com/file/d/190t5DLuwg5XDegypU_YGmrL9PdGcDGIl/view?usp=sharing