PLASMA DONOR APPLICATION

NALAIYA THIRAN PROJECT BASED LEARNING

ON

PROFESSIONAL READINESS FOR INNOVATION

EMPLOYABILITY AND ENTREPRENEUSHIP

A PROJECT REPORT

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ABSTRACTION

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

OBJECTIVE

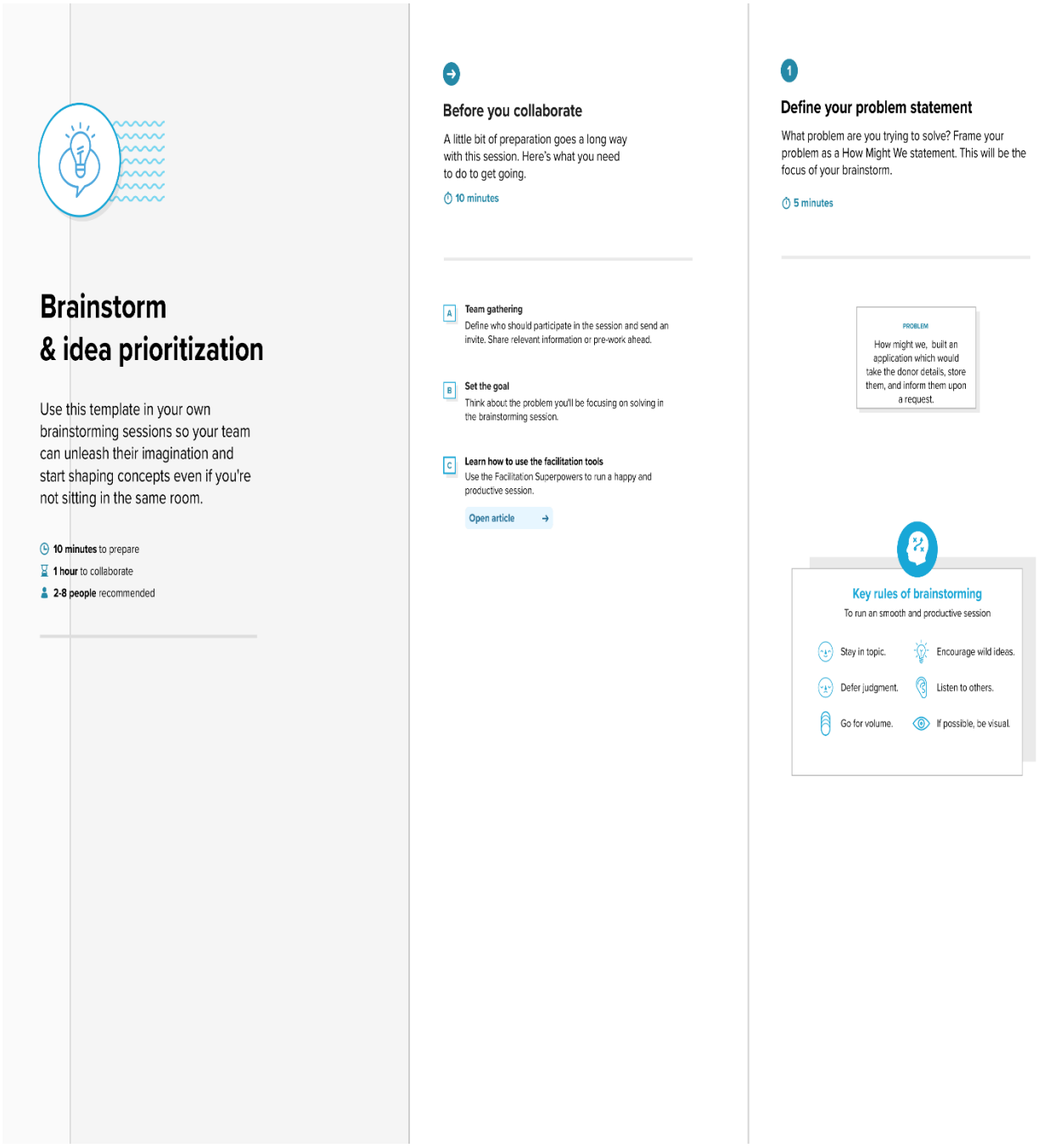
- To develop an application which will act as a helping hand for the patient who was in need of the plasma.
- The main objective of the proposed solution is to create database to store the donor details and to notify them upon receiving request from the patient
- To develop an application which having great responsive user interaction.
- To create a user-friendly application for saving the lives which are in the danger.
- To increase the plasma donors using by minimizing the procedures of plasma donation.

EMPATHY MAP

it can help your body stay healthy and work more efficiency
It make positive Feeling
User friendly
plasma can donate 13 time in year
What do they THINK AND FEEL?
what really counts
major preoccupations
worries & aspirations
Dehydration
Dizziness
Decomort
What do they HEAR?
what friends say
what boss say
what influencers say
DONATE NOW
Can register the detail as donor
Above 20yrs can only donate the plasma
What do they SEE?
environment
friends
what the market offers
worth of 1000 bitcoin
Receive the request through mail
Voluntary plasma donation
It maintain the health pressure
It help to boost mental and physical health
What do they SAY AND DO?
attitude in public
appearance
behavior towards others
Alert when some one needs plasma
It make your skin more smooth and youth-full looks
lack of datas and information
PAIN
fears
frustrations
obstacles
Vulnerability assesment
Notification delay
Donor Counselling
GAIN
"wants" / needs
measures of success
obstacles
Needs lots of Information
satisfaction to save lives

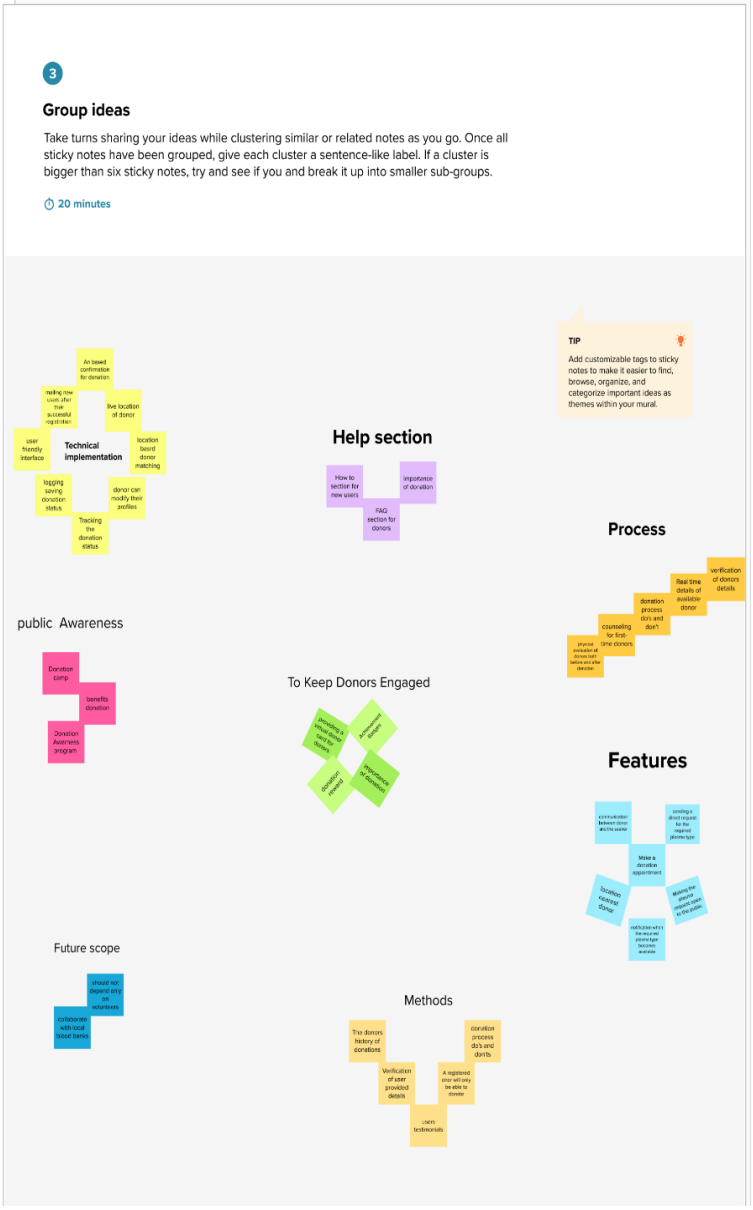
IDEATION

STEP 1:



Step 2:

2
Brainstorm
Write down any ideas that come to mind that address your problem statement.
10 minutes
TIP
You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!
Anbarasi.B
Bakyalakshmi .S
Bharani .S
Janani .A


3
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.
20 minutes
TIP
Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.
Technical implementation
Help section
Process
public Awareness
To Keep Donors Engaged
Features
Future scope
Methods

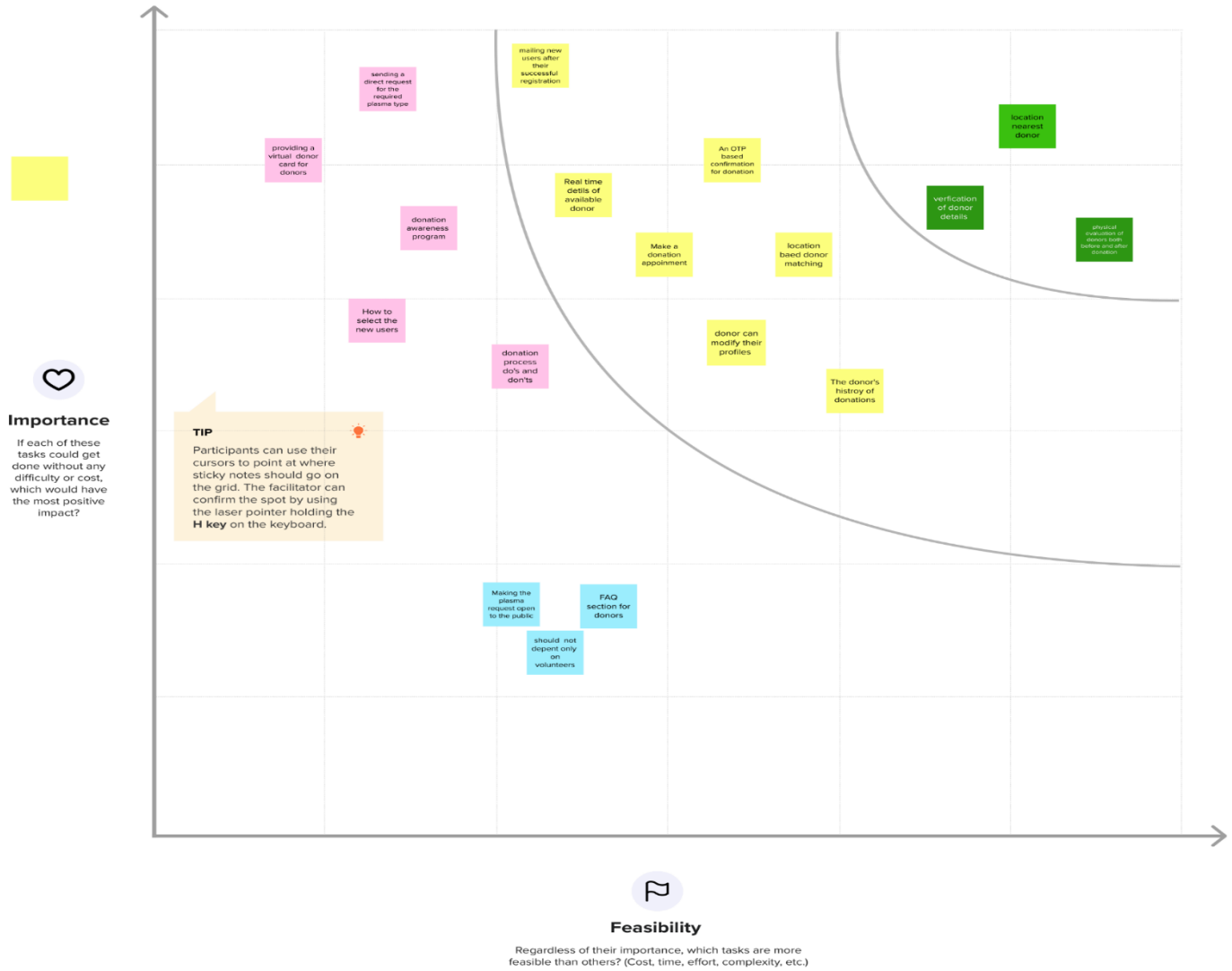
STEP 3:

4

Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes



Importance

If each of these tasks could get done without any difficulty or cost, which would have the most positive impact?

TIP

Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the **H key** on the keyboard.

Feasibility

Regardless of their importance, which tasks are more feasible than others? (Cost, time, effort, complexity, etc.)

LITERATURE SURVEY

Paper 1: Blood donor app usage behaviour and perceptions: Considerations for a blood donation app (Andrea Potgieter, May 2022)

This article aimed to determine whether South African blood donor app usage behaviour and perceptions were conducive to introduce a blood donation app, and what these behaviours and perceptions could reveal, to support South African Blood Donation Organizations in their recruitment and engagement endeavours. The research problem discussed in this article sought to highlight the app usage behaviour of blood donors, and their perceptions about a proposed blood donation app. forming part of a larger sequential mixed-methods study, the data presented in this article were gathered through a quantitative online questionnaire involving 2154 South Africans respondents. The value of this research lies in the insight gained into the behaviour and perceptions of South African blood donors, which can inform the conceptualization and design of a blood donation app, thereby improving its efficacy and subsequently supporting the strategy of employing such a technology to increase blood donation.

Paper 2: Evaluation of the Wateen App in the Blood-Donation Process in Saudi Arabia (Tourkiah Alessa, April 2022)

The aim of this research was to evaluate the usability, user satisfaction and perceived usefulness of this blood-donation app in Saudi Arabia. A mixed-method study was conducted comprising a quantitative questionnaire with donor and qualitative semi-structured interviews with healthcare professionals. Descriptive analysis was used for the quantitative data and a thematic approach for the qualitative data. Quantitative data analysis was conducted using SPSS software package 19 to calculate descriptive statistics.This blood-donation app is highly usable and acceptable among donors and healthcare professionals in Saudi Arabia, offering several benefits. Some accessibility issues were identified, along with possibilities for improving accessibility and expanding the app's functionality.

Paper 3: Location-based Mobile Application for Blood Donor Search (Fernando Alex Sierra-Linan, January 2022)

The research proposes the development of a location-based mobile application for blood donor search (DONAPE), for which the mobile application provides a direct location-based channel between blood seekers and blood donation centers. Achieving to increase the number of donors, improve the place of origin (geographical location) of donors and improve the search time. They chose to use the agile Scrum method to develop the project prototype. This method has 5 phases: initiation, planning and estimation, implementation, review and retrospective and launch, for the development of this project. In web and mobile applications were developed to manage blood donation, allowing to register, schedule, receive notifications and access information, synchronizing

blood donation centers with emergency centers, to verify the availability of blood needed and to send a request to the nearest blood donation center.

Paper 4: A Cross-Platform Blood Donation Application with a Real-Time, Intelligent, and Rational Recommendation System (Rashik Rahman, September 2021)

In this research work, they have designed a real-time, intelligent, and rational recommendation system using sentiment analysis of the user's feedback, response rate of the donor, and the current geo-location information and finally develop a cross-platform application for blood collection and distribution system. To process and generate features from the user feedback, they have designed a Bi-directional LSTM-based deep learning model. They chose the flutter framework to develop our cross platform applications. Firebase, a Google platform for mobile and web applications, has been used in the proposed application for authentication man. The quality of the recommendation of the potential donors has significantly improved. Moreover, they have conducted rigorous requirement analysis from real users and evaluated the performance of the application through both indoor and outdoor testing.

Paper 5: Preferences and features of a blood donation smart phone app: A multicenter mixed-methods study in Riyadh, Saudi Arabia (Afaf Ali Batis, March 2021)

To identify the features and preferences of a blood donation smart phone app for blood donation centers and donors in Riyadh City, Saudi Arabia. This is a mixed-method study composed of a quantitative cross-sectional part (with donors, using a self-administered questionnaire), and a qualitative/quantitative part (with blood donation center staff, using semi-structured interviews). Data were collected between 15 November 2017 and 5 February 2018, from four blood donation centers in Riyadh City, Saudi Arabia. A descriptive analysis was used for the quantitative part and a thematic approach for the qualitative par

Paper 6: Instant plasma donor recipient connector web application (Kalpana Devi Guntoju, Tejsvini Jalli, Sreejauppla, June 2022)

Donor who wants to donate plasma can simply upload their recovered covid19 certificate and can donate the plasma to a blood bank. The blood bank after checking the donor certificate can make a request to the donor when the donor accepts the request, they can add the required number of units they need. The hospital can send a request to the end a request to the blood bank that needs the patient's emergency plasma and to get the plasma from the blood bank. on. After the donor login to the After running the code, the URL is displayed and the user needs to paste the URL into the browser. At the end of the URL, you need to add the donor login to open the donor page, b-bank login for the blood bank page, and h-login for the hospital page. Donors who wish to donate plasma can donate by uploading their COVID19 recovery certificate on the donor's page. If the donor is new, they must register before log in. If the donor is an existing user they need to login. Username and e-mail provided at the time of registration.

PROBLEM STATEMENT

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	Donor	To Search for Donation Centre nearby my location	Not able to search	Lack of Technology	Worried
PS-2	Blood seeker	To search for plasma	Unavailable Resources	Registration is not done	Frustrated
PS-3	Health care professionals	To check for Volunteers For Plasma Donation	No clear information	Unpopularity Of Blood Centre	Tensed
PS-4	Third person (Society)	create awareness of Donation	Not Effective	Limited Support In Public	Dissatisfied

PROPOSED SOLUTION

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Saving the donor information and helping the needy by notifying the current donors list.
2.	Idea/Solution description	an application is to be built which would take the donor details, store them and inform them upon a request.
3.	Novelty/Uniqueness	The application was created to send the nearby donor details to the needy people.
4.	Social Impact/Customer Satisfaction	In the pandemic period the requirement for plasma went high and the donor count has reduced, this application was created to help the trauma patients.
5.	Business Model (Revenue Model)	It will be a non-profit organization
6.	Scalability of the Solution	Since the project uses IBM DB2 database it can handle with multiple requests in various regions

PROBLEM SOLUTION FIT

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) CS

6. CUSTOMER CONSTRAINTS CC

- Clear understanding of analysis due to visualization technique
- Any kind of customers can understand the analysis and interpretation
- Less time consumption

5. AVAILABLE SOLUTIONS

Provide perfect data report after deep analyse of past data. Helping them out to overcome loss in farming and business.

Focus on J&P, tap into BE, understand RC

2. JOBS-TO-BE-DONE / PROBLEMS J&P

- Seasons with average productions
- With years usage of area and production
- Top 10 states with most area
- State with crop production
- States with the crop production along with season
- Dashboard creation.

9. PROBLEM ROOT CAUSE RC

In order to estimate the crop yield to increase the quality and reduce the risk management.

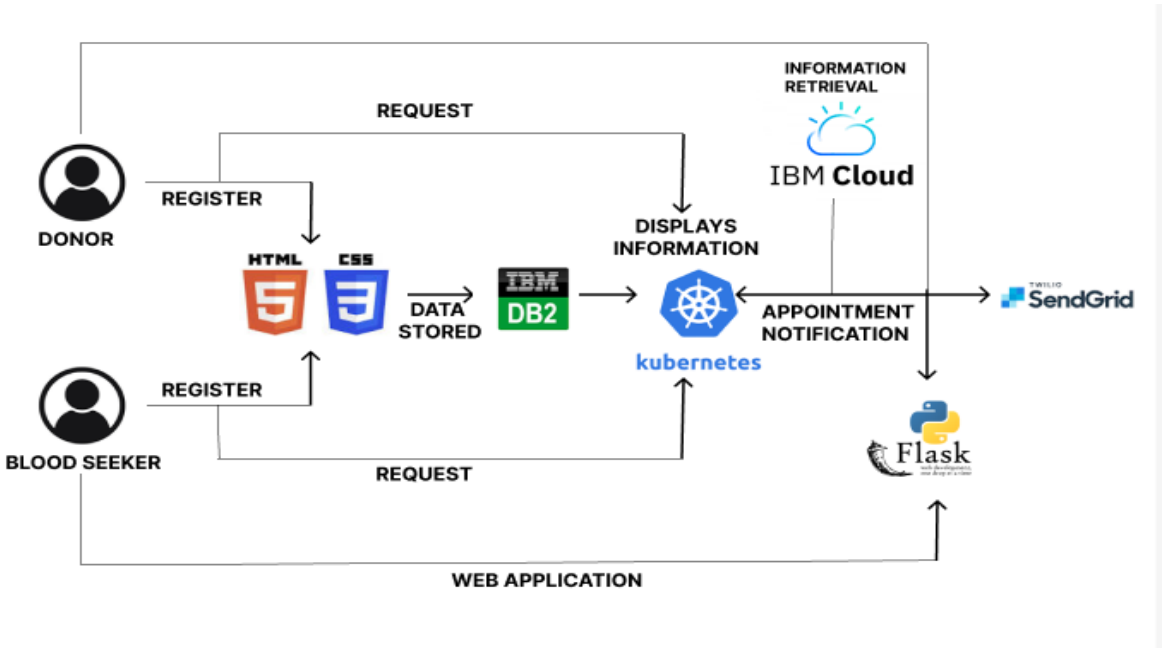
7. BEHAVIOUR BE

- User should provide correct input for analysis
- Dashboard should be provided with best algorithm to give feasible solution.

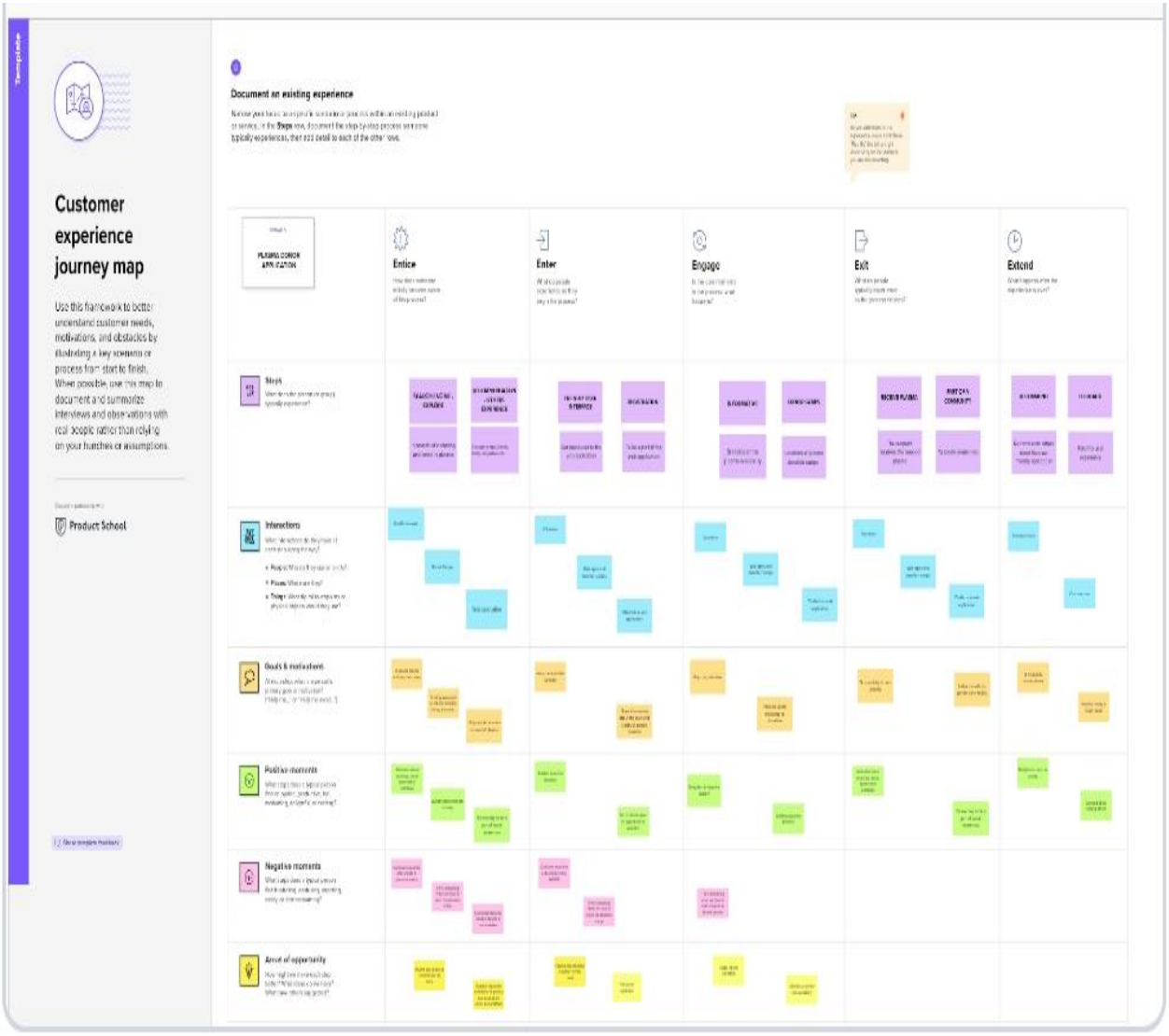
Focus on J&P, tap into BE, understand RC

I	**3. TRIGGERS** Climate and temperature, Soil fertility, Availability of water, Light intensity, oxygen and CO2, Crop diseases or pests. TR	**10. YOUR SOLUTION** SL With the data visual reports, we can cultivate crop according to the Crop, State, District, Climate, Soil can change the estimation of crop yield.	**8.CHANNELS of BEHAVIOUR** CH **ONLINE** Visualising the crop yield analysis. **OFFLINE** Based on the analysis user gets the expected outcome.
	4. EMOTIONS: BEFORE / AFTER EM Before: Stress of the farmer about the crop yield. Depression of the farmer due to less production of the crop growth. After: Feel joy, Happiness, and peace.		

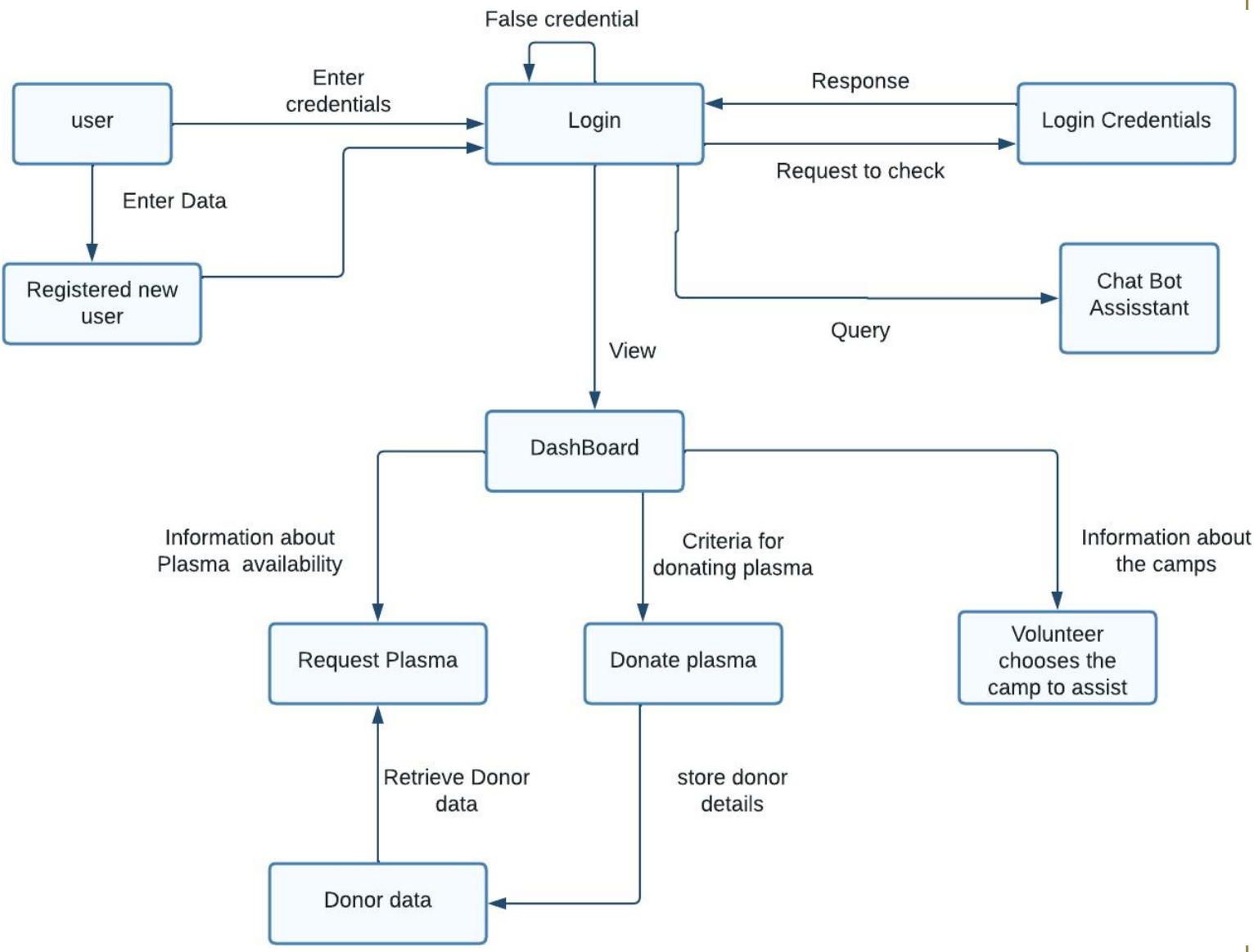
SOLUTION ARCHITECHERE



CUSTOMER JOURNEY



DATA FLOW DIAGRAM



Project Design Phase-II

Solution Requirements (Functional & Nonfunctional)

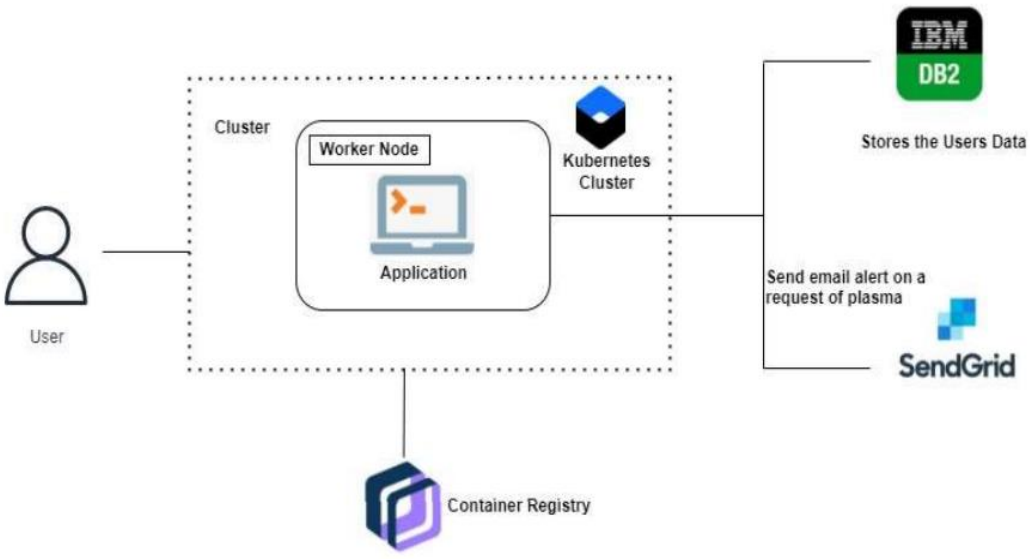
FUNCTIONAL REQUIREMENTS :

FR NO	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through the Form (WebApp)
FR-2	Certification	After the donor donates plasma, we will give them a certificate of appreciation and authentication.
FR-3	StatisticaL data	The availability of plasma is given in the page as status, which will be helpful for the users.
FR-4	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-5	Searching/reporting Requirements	Users can use the search bar to look up information about camps and other topics.
FR-6	Virtual Assistants	A virtual assistant is a software agent that can carry out tasks or provide services on behalf of a person in response to commands or inquiries. When users enter their inquiries, the system will respond with pertinent information about plasma and details of plasma donation.
FR-7	User Confirmation	Confirmation via the Email Confirmation via the OTP

NON FUNCTIONAL REQUIREMENTS :

NFR-NO	**Non-Functional Requirement**	**Description**
NFR-1	Usability	Must have a good looking User friendly interface.
NFR-2	Security	It must be secured with the proper username and password.
NFR-3	Reliability	The system should be made in such a way that it is reliable in its operations and for securing the sensitive details.
NFR-4	Performance	Users should have a proper Internet Connection
NFR-5	Availability	The system including the online and offline components should be available 24/7.

Technology Architecture :



Technical description:

Sl.No	Parameter	Description
1.	Is the System Robust?	Yes, the system is robust that it can't be crashed intermittently and it has been tested for several times before placing it to the high availability environment.
2.	Is it highly modifiable?	Yes, the system is modifiable and it can admit to the changes by detecting errors that needs to be fixed and new functionalities. It is highly Responsive changes.
3.	Is it Scalable?	Yes, the system proposed is highly scalable as it can handle the growing workload where good performance is also needed to work efficiently. Deployment of the platform has been done using various OS virtualization platform it will handle the workload statistically.
4.	Is it buildable?	Yes, it is partially buildable platform as the budget required will be more as cloud is a pay per use model and time taken will be quite comparatively less.

MILESTONES AND ACTIVITY LISTS

PREREQUISITES :

- Python IDLE
- Flask
- IBM Cloud
- Docker

1.IDEATION PHASE

- Literature Survey
- Empathize
- Defining Problem Statement
- Ideation

2.PROJECT DESIGN PHASE 1

- Proposed Solution
- Problem Solution Fit
- Solution Architecture

3.PROJECT DESIGN PHASE 2

- Functional Requirement
- Customer Journey
- Data flow
- Technology Architecture

4.SETTING UP APPLICATION ENVIRONMENT

- Create Flask Project
- Create IBM Cloud Account
- Install IBm Cloud CLI
- Docker CLI installation
- Create an account in Sendgrid

5.IMPLEMENTING WEB APPLICATIONS

- Create UI to interact with application
- Registration page

- Login Page
- Stats page to display the count
- Request Page
- Create IBM DB2 and connect with Python
- IBM DB2 with Python

6.INTEGRATING SENDGRID SERVICE

- Sendgrid integration with Python code.

7.DEPLOYMENT OF APP IN IBM CLOUD

- Containerize the app
- Docker image creation
- Creating docker image for flask app
- Upload image to IBM container registry
- Deploy in Kubernetes cluster

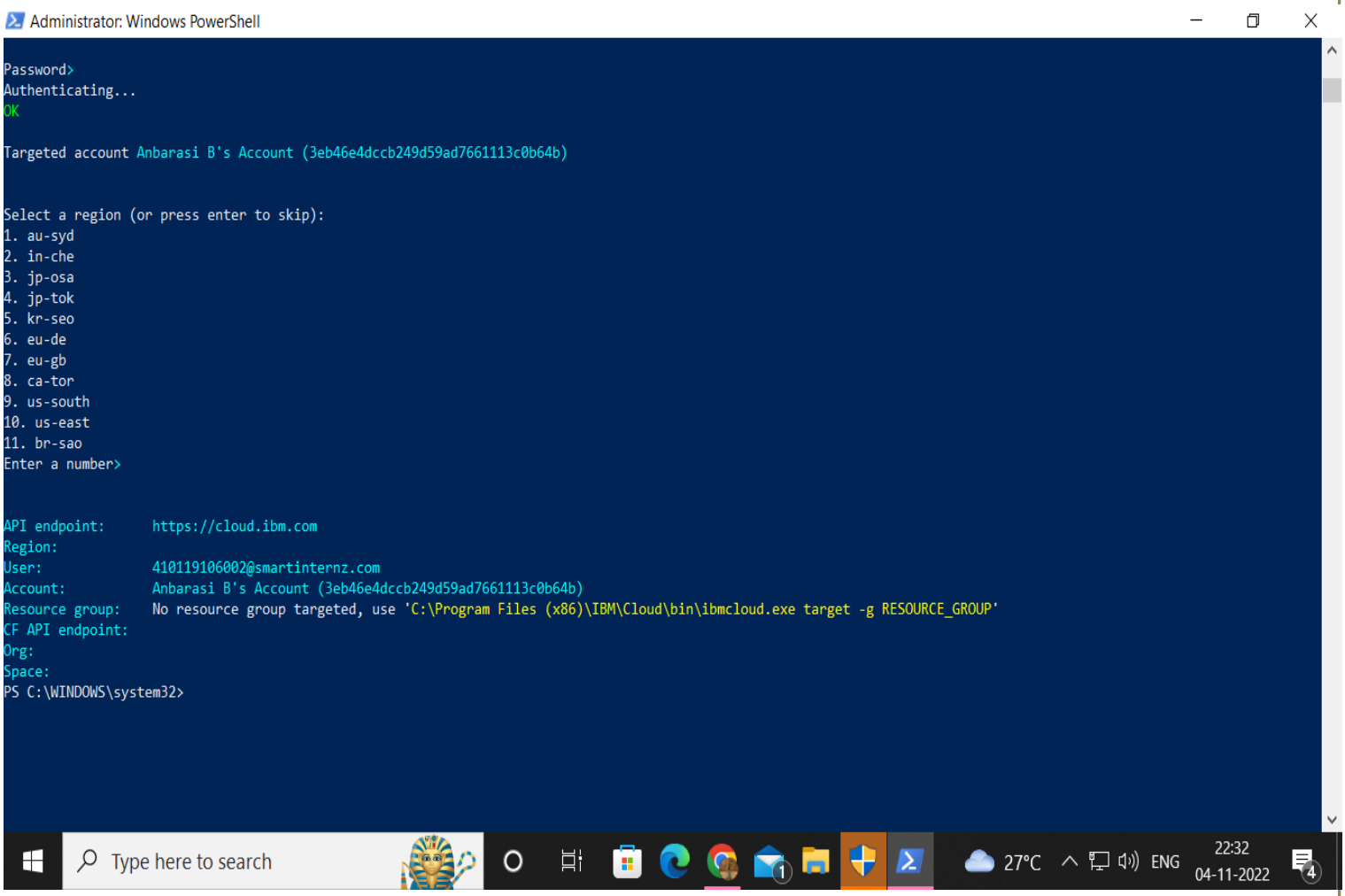
8.PROJECT PLANNING PHASE

- Prepare Milestone and Activity list
- Sprint Delivery Plan

9.PROJECT DEVELOPMENT PHASE

- Project development-Delivery of sprint-1
- Project development-Delivery of sprint-2
- Project development-Delivery of sprint-3
- Project development-Delivery of sprint-4

IBM CLOUD CLI INSTALLATION



Project Planning Template (Product Backlog, Sprint Planning, Stories, Story points)

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	User Panel	USN-1	The user will login into the website enter his /her name, age, blood group, mobile number, email id.	20	High	ANBARASI B BAKYALAKSHMI S BHARANI S JANANI A
Sprint-2	Admin Panel	USN-2	The request notification with the nearest place for plasma donation will send to the user.	20	High	ANBARASI B BAKYALAKSHMI S BHARANI S JANANI A
Sprint-3	Chat Bot	USN-3	The user can also directly talk to the webpage and ask questions using the chatbot	20	High	ANBARASI B BAKYALAKSHMI S BHARANI S JANANI A
Sprint-4	Final Delivery	USN-4	Integrate the application to Cloud using Docker and Kubernetes. Submit the report of the final application.	20	High	ANBARASI B BAKYALAKSHMI S BHARANI S JANANI A

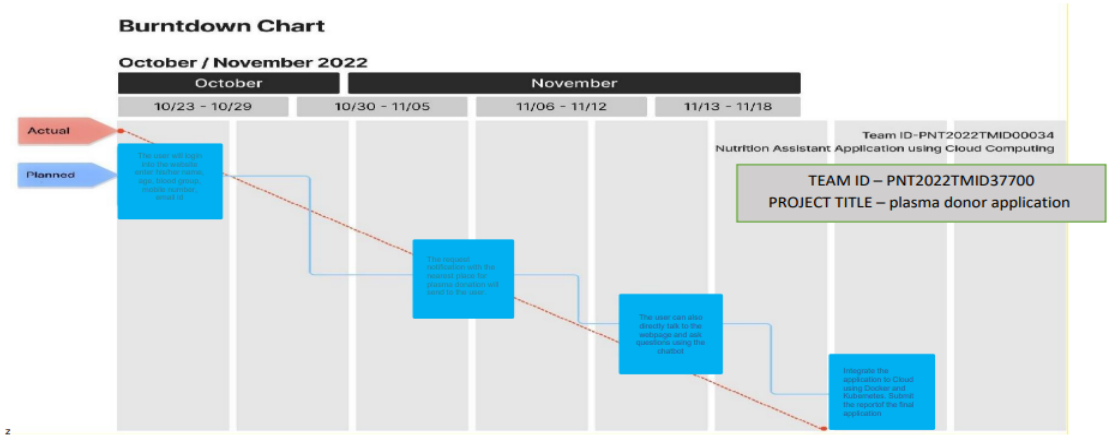
Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022		29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022		05 Nov 2022
Sprint-3	20	6 Days	07 Oct 2022	12 Nov 2022		12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022		19 Nov 2022

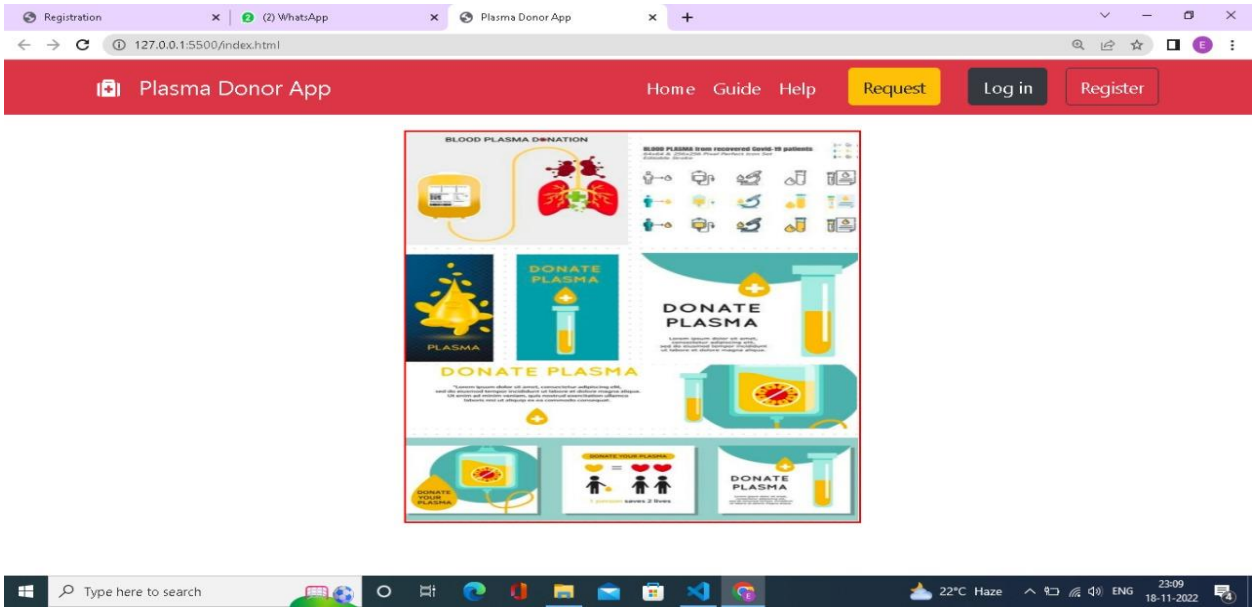
Velocity :

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

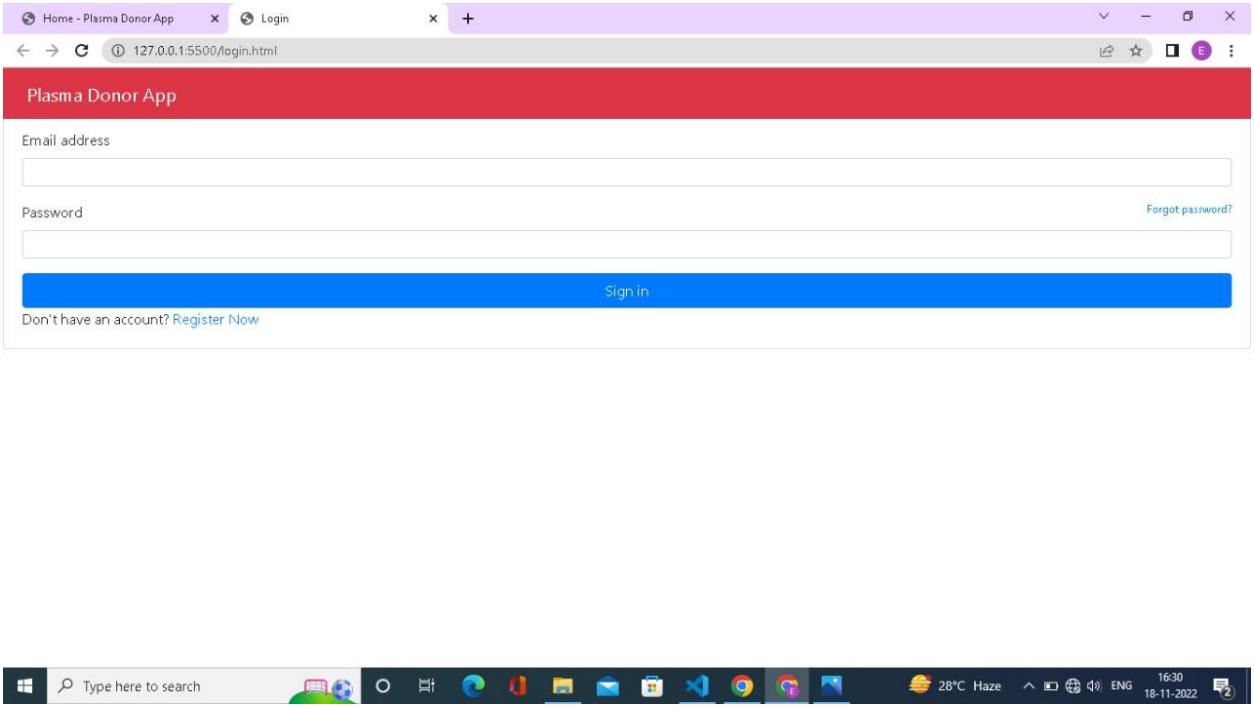
Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)



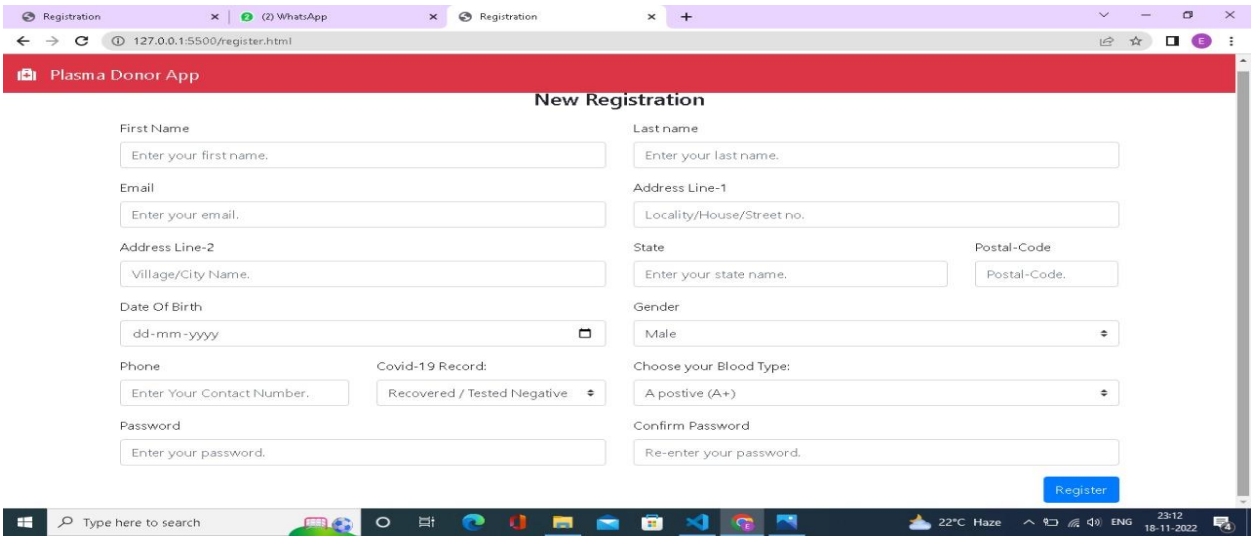
Sprint-1:



Login page:

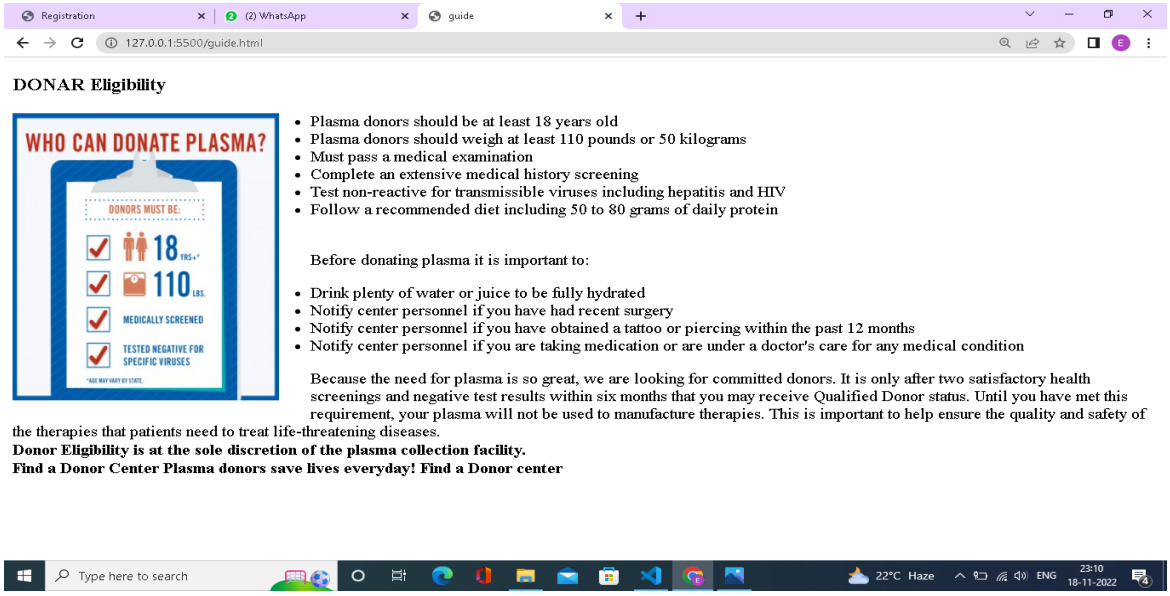


Register page

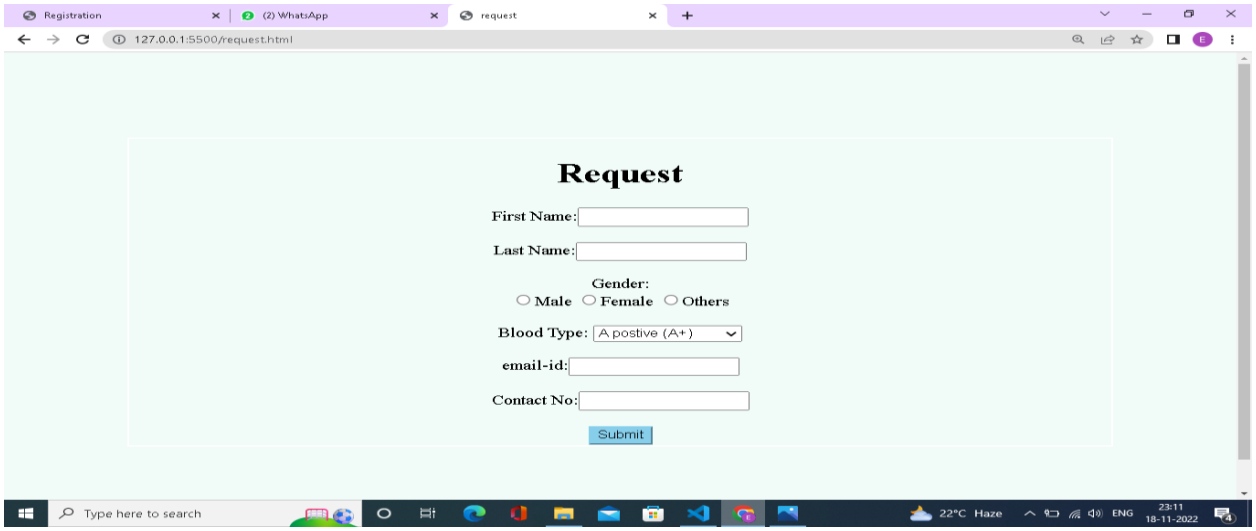


Sprint 2:

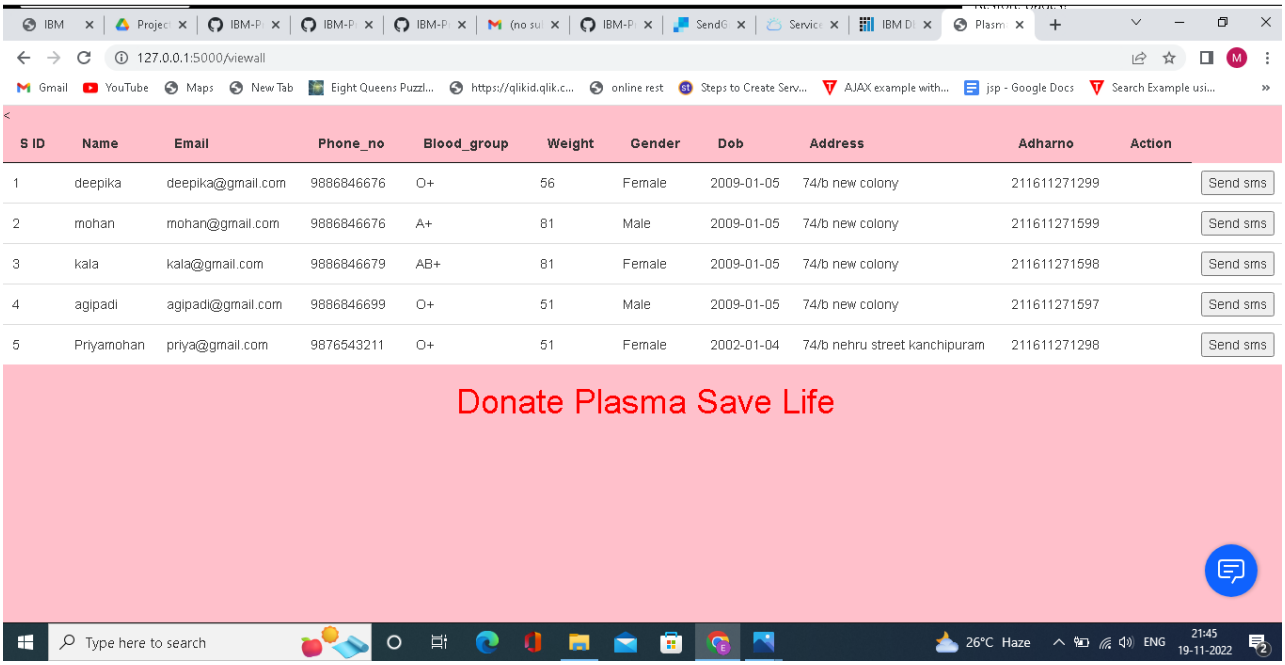
Eligibility criteria:



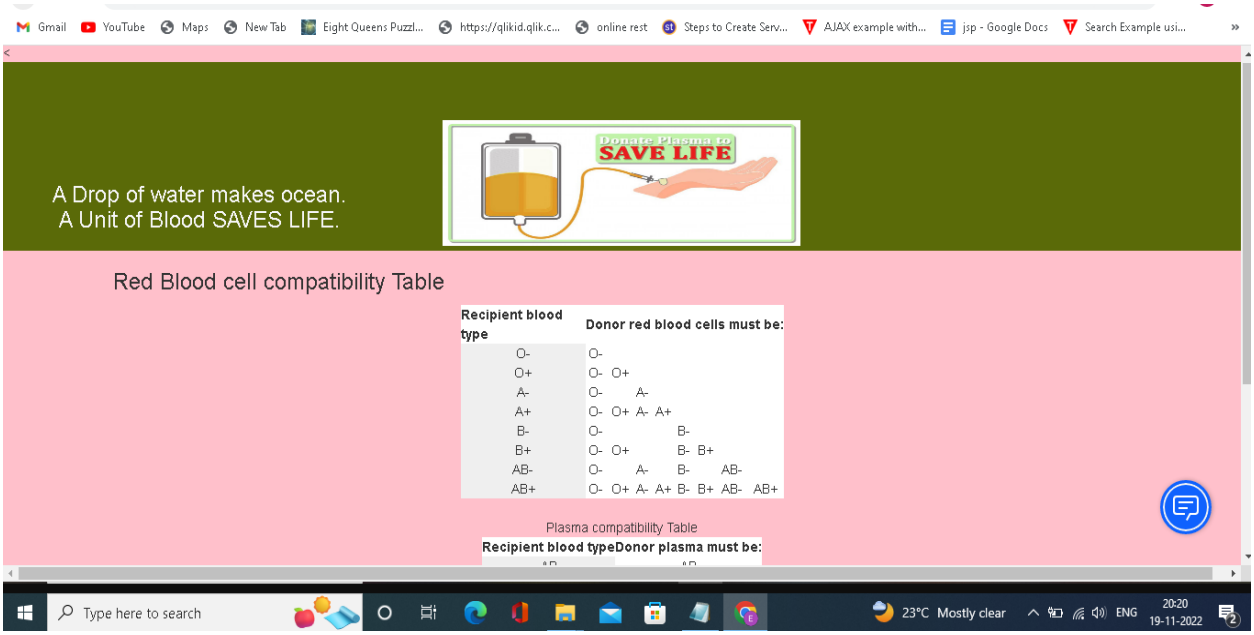
Request Page:



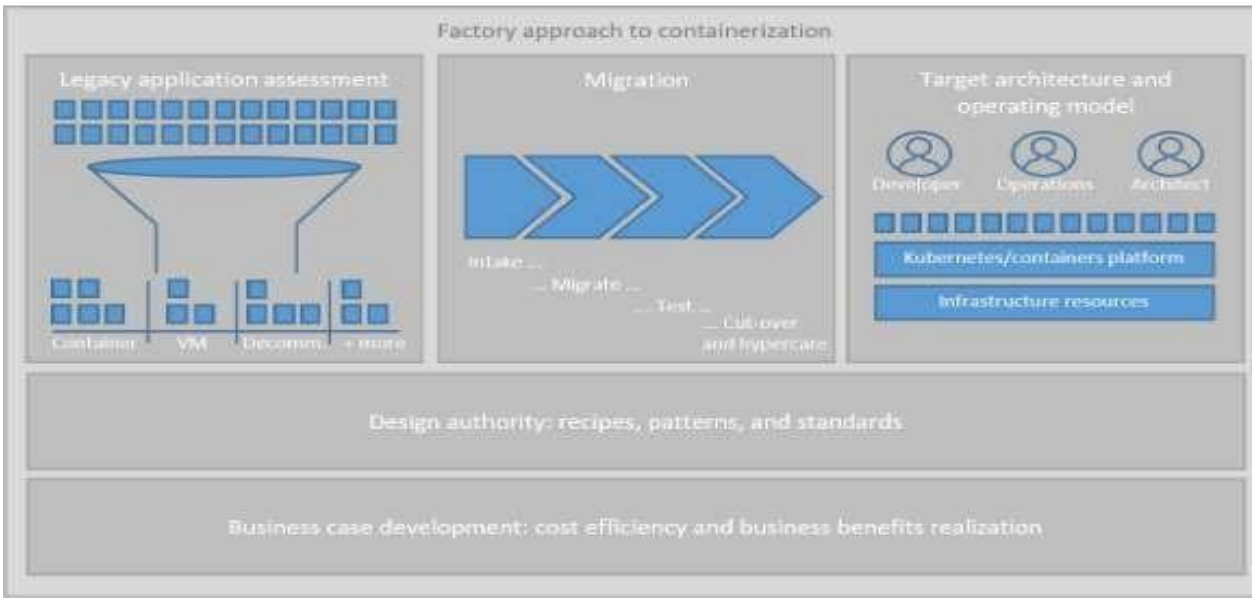
Sprint 3:



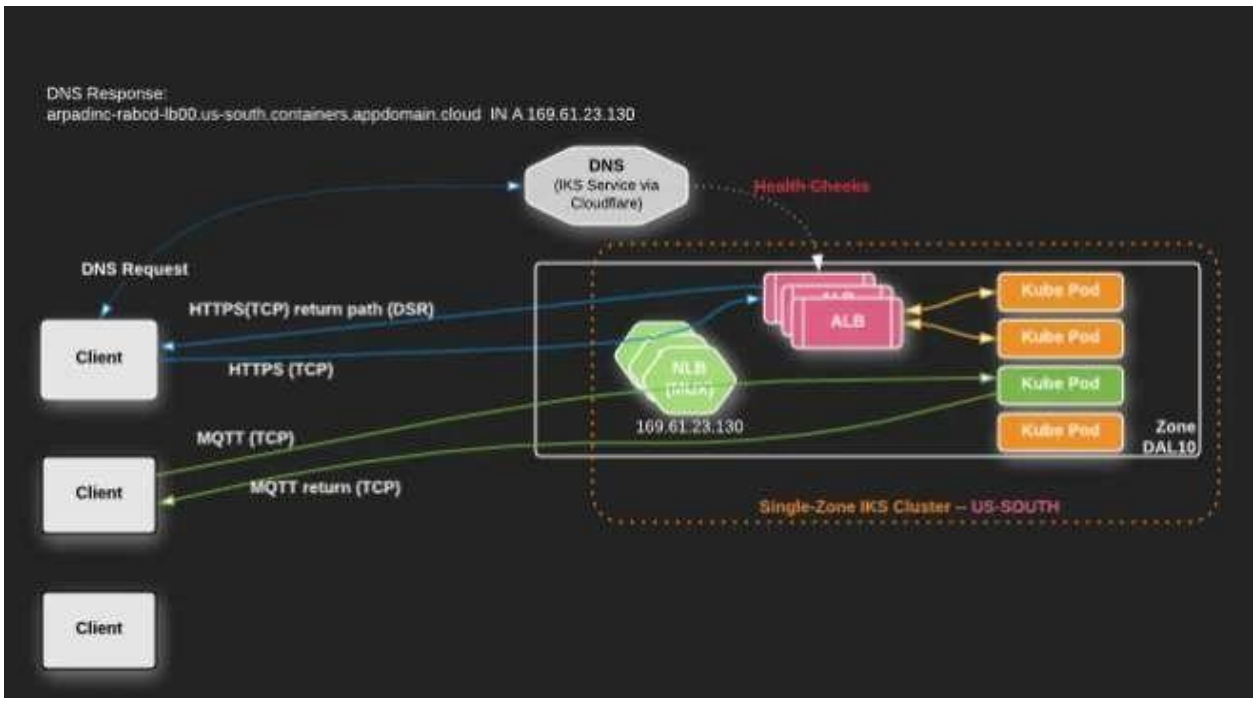
Plasma compatibility



CONTAINISE THE APP

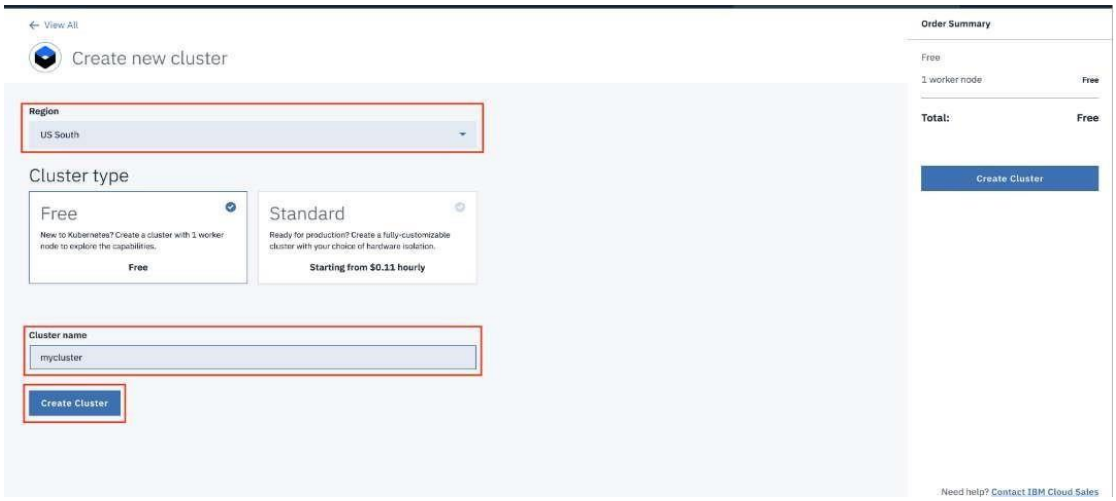


Deployment in Kubernetes

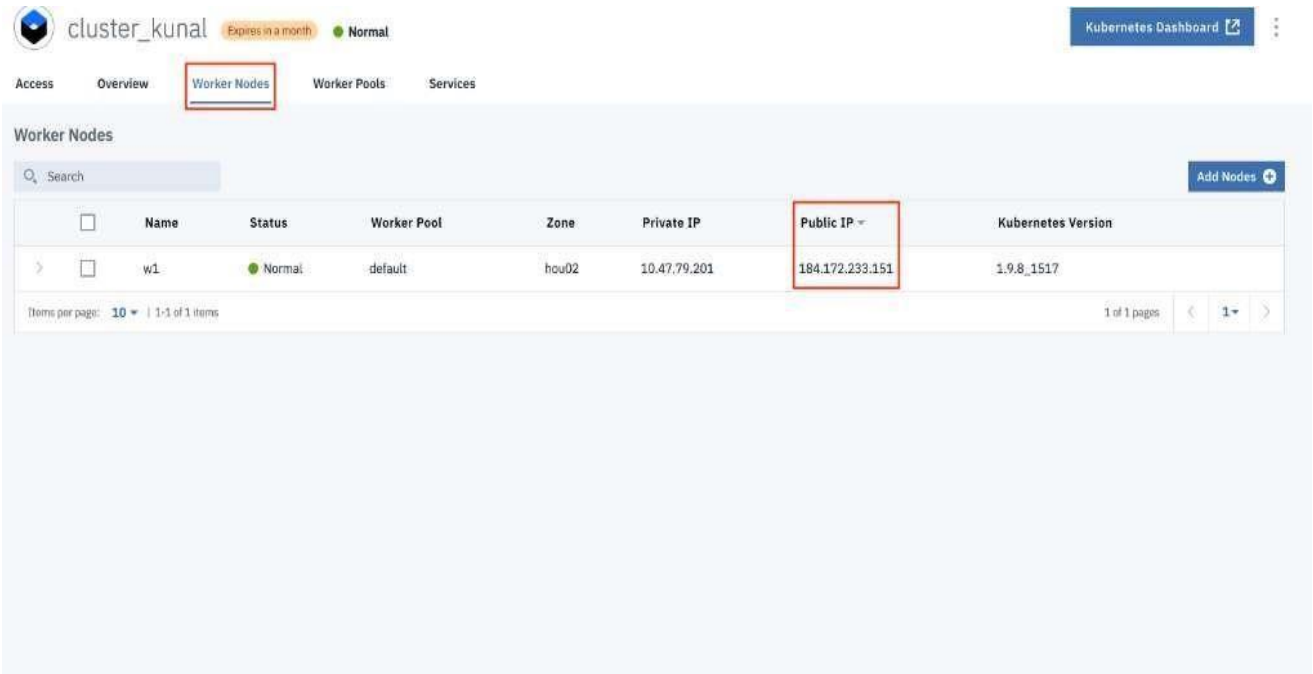



```
Hostname: echoserver-deployment-859b75d8c4-w75jn

Pod Information:
        node name:      10.94.21.13
        pod name:       echoserver-deployment-859b75d8c4-w75jn
        pod namespace:  default
        pod IP: 172.30.45.7

Server values:
        server_version=nginx: 1.13.3 - lua: 10008

Request Information:
        client_address=172.30.45.5
        method=GET
        real path=/
        query=
        request_version=1.1
        request_scheme=http
        request_uri=http://echoserver.arpad-ipvs-test-aug14.us-south.containers.appdomain.cloud:8080/

Request Headers:
        accept=*/*
        host=echoserver.arpad-ipvs-test-aug14.us-south.containers.appdomain.cloud
        user-agent=curl/7.54.0
        x-forwarded-for=195.21[redacted]
        x-forwarded-host=echoserver.arpad-ipvs-test-aug14.us-south.containers.appdomain.cloud
        x-forwarded-port=443
        x-forwarded-proto=https
        x-global-k8fdic-transaction-id=fc9b6d1faac1b7b63bf96abf02396378
        x-real-ip=195.21[redacted]

Request Body:
        -no body in request-
```

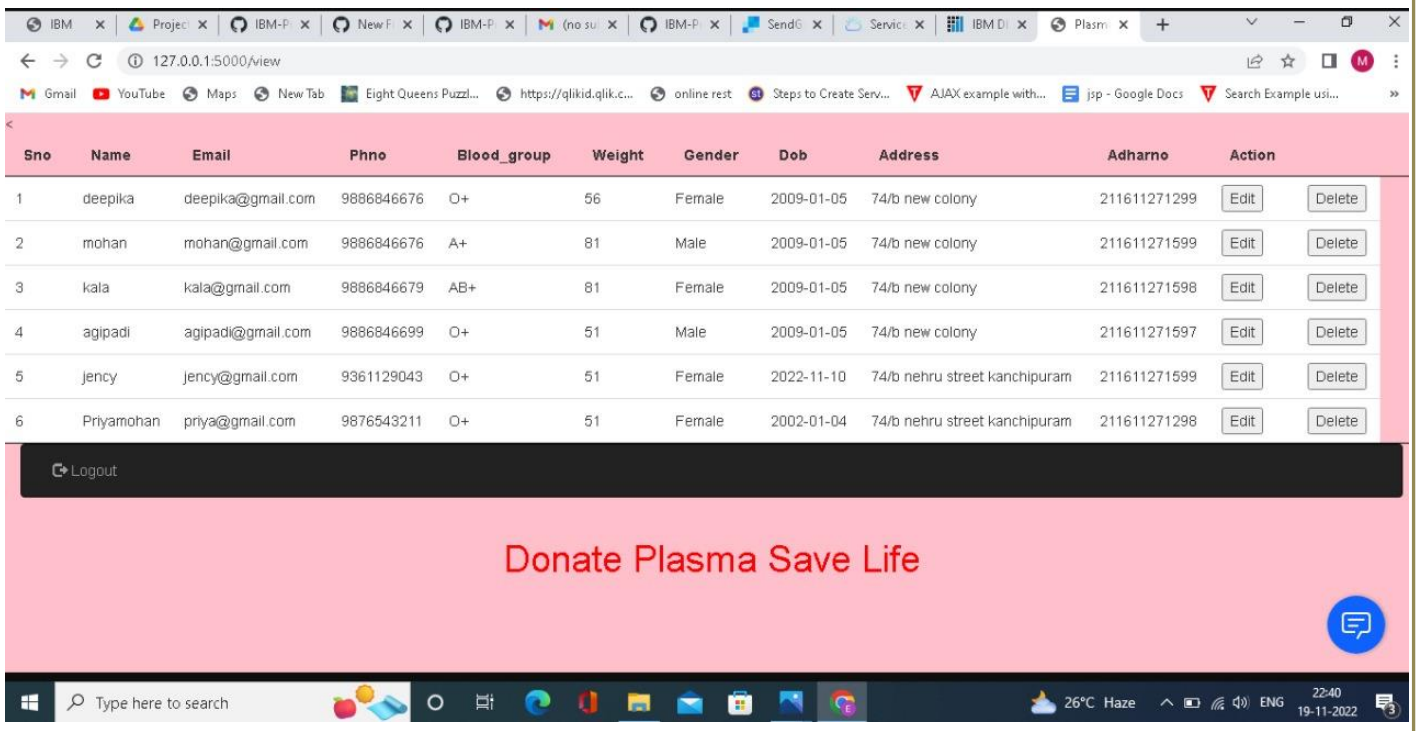
Registry:



UPLOAD IMAGE TO IBM CONTAINER



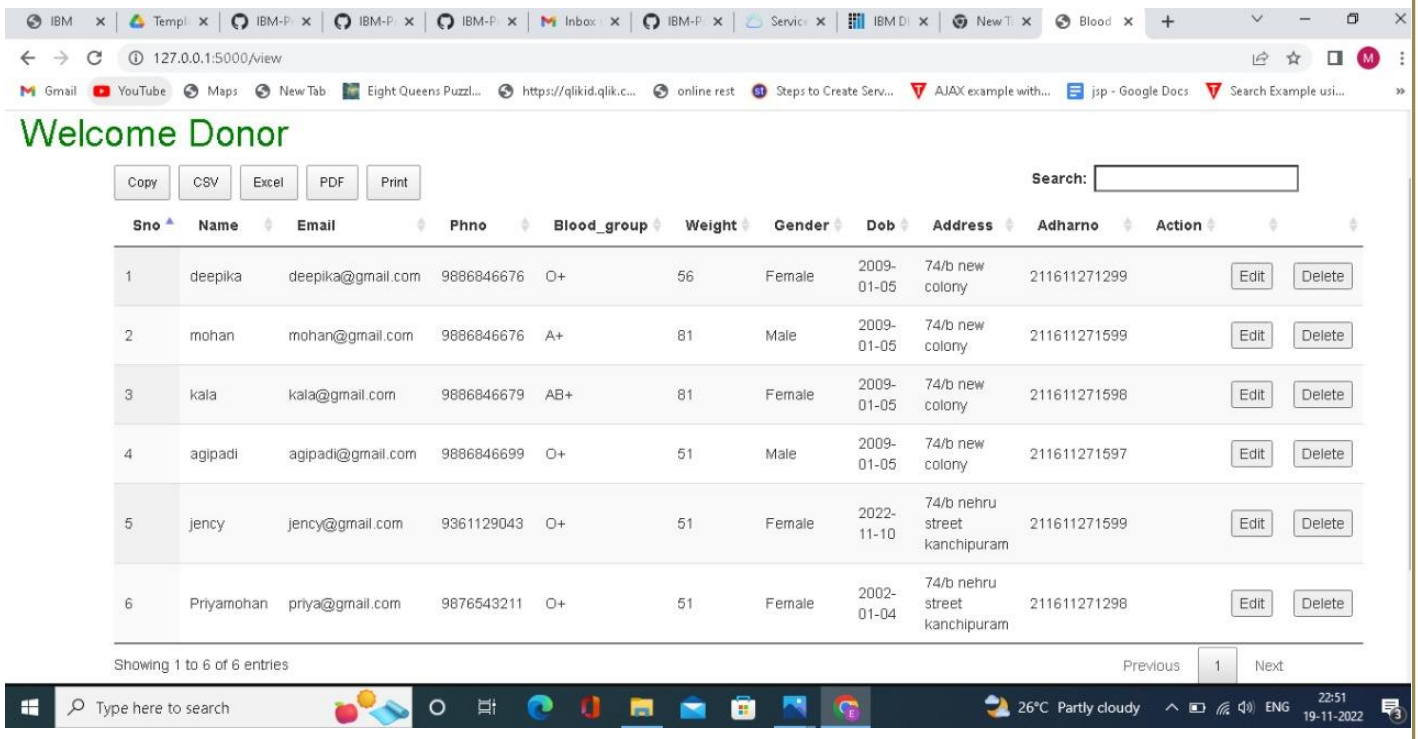
Sprint 4



Sno	Name	Email	Phno	Blood_group	Weight	Gender	Dob	Address	Adharno	Action	
1	deepika	deepika@gmail.com	9886846676	O+	56	Female	2009-01-05	74/b new colony	211611271299	Edit	Delete
2	mohan	mohan@gmail.com	9886846676	A+	81	Male	2009-01-05	74/b new colony	211611271599	Edit	Delete
3	kala	kala@gmail.com	9886846679	AB+	81	Female	2009-01-05	74/b new colony	211611271598	Edit	Delete
4	agipadi	agipadi@gmail.com	9886846699	O+	51	Male	2009-01-05	74/b new colony	211611271597	Edit	Delete
5	jency	jency@gmail.com	9361129043	O+	51	Female	2022-11-10	74/b nehru street kanchipuram	211611271599	Edit	Delete
6	Priyamohan	priya@gmail.com	9876543211	O+	51	Female	2002-01-04	74/b nehru street kanchipuram	211611271298	Edit	Delete

Logout

Donate Plasma Save Life



Welcome Donor

Copy CSV Excel PDF Print Search:

Sno	Name	Email	Phno	Blood_group	Weight	Gender	Dob	Address	Adharno	Action	
1	deepika	deepika@gmail.com	9886846676	O+	56	Female	2009-01-05	74/b new colony	211611271299	Edit	Delete
2	mohan	mohan@gmail.com	9886846676	A+	81	Male	2009-01-05	74/b new colony	211611271599	Edit	Delete
3	kala	kala@gmail.com	9886846679	AB+	81	Female	2009-01-05	74/b new colony	211611271598	Edit	Delete
4	agipadi	agipadi@gmail.com	9886846699	O+	51	Male	2009-01-05	74/b new colony	211611271597	Edit	Delete
5	jency	jency@gmail.com	9361129043	O+	51	Female	2022-11-10	74/b nehru street kanchipuram	211611271599	Edit	Delete
6	Priyamohan	priya@gmail.com	9876543211	O+	51	Female	2002-01-04	74/b nehru street kanchipuram	211611271298	Edit	Delete

Showing 1 to 6 of 6 entries Previous 1 Next

Conclusion

- In our project we successfully created one user friendly app which can collect the donor details and store them in the cloud and given the details to the needy people .
- In our app we use DB2 for the storage ,SendGrid for mail service and IBM cloud for the data's storage. At last all the details were deployed to the Kubernetes.

References

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2.Blood donor app usage behaviour and perceptions: Considerations for a blood donation app (Andrea Potgieter, May 2022)

3.Evaluation of the Wateen App in the Blood-Donation Process in Saudi Arabia (Tourkiah Alessa, April 2022)

4. Location-based Mobile Application for Blood Donor Search (Fernando Alex Sierra-Linan, January 2022)

5.Preferences and features of a blood donation smart phone app: A multicenter mixed-methods study in Riyadh, Saudi Arabia (Afaf Ali Batis, March 2021)

6. Instant plasma donor recipient connector web application (Kalpana Devi Guntoju, Tejsvini Jalli, Sreejauppla, June 2022)