PROJECT REPORT

Date	**14.11.2022**
Team ID	**PNT2022TMID02933**
Project Name	**Plasma Donor Application**
Team Members	**Kavin(19EUIT072)** **Kishore(19EUIT078)** **Kavinkumar(19EUIT073)** **Priyadharshan(19EUIT121)**

1. INTRODUCTION

1.1 Project Overview

The Plasma donor app is to create details about the donor and organizations that are related to donating the blood. Through this application any person who is interested in donating blood can register himself in the same way if any organization wants to register itself with this site that can also register. Moreover if any general consumer wants to request blood online he can also take the help of this site. Admin is the main authority who can do addition" deletion" and modification if required.

1.2 Purpose

The goal of the project is to develop a web application for plasma banks to manage information about their donors and plasma stock. The main objectives of this website development can be defined as follows:

1. To develop a system that provides functions to support donors to view and manage their information conveniently.

2. To maintain records of plasma donors, plasma donation information and plasma stock in a centralized database system.

3. To support searching, matching and requesting for blood convenient for administrators.

4. To provide a function to send an email directly to the donor for their useraccount.

2. LITERATURE SURVEY

2.1 Existing problem

- Risk of mismanagement and of data when the protection is under development.
- No use of web services and remoting.

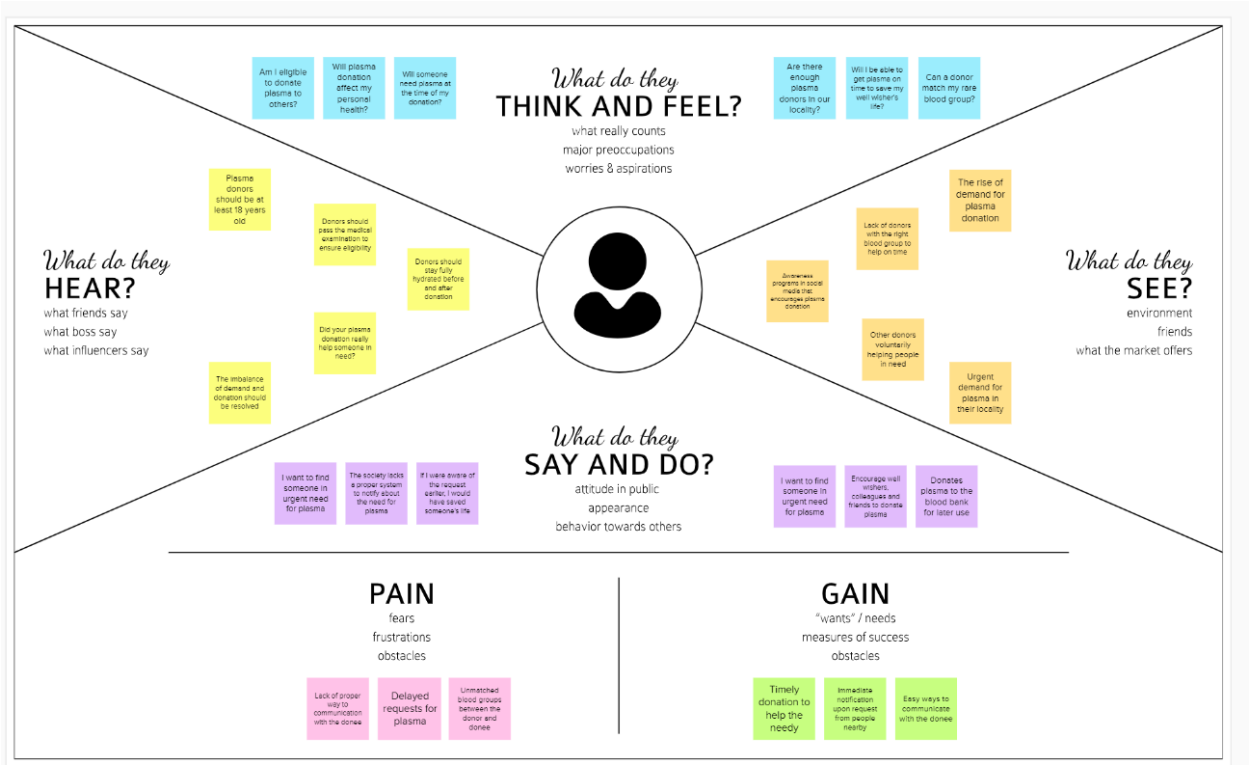
2.2 Problem Statement Definition

During the COVID 19 crisis, the requirement of plasma became a high priority and the donor count has become low. Saving the donor information and helping the needy by notifying the current donors list, would be a helping hand. In regard to the problem faced, an application is to be built which would take the donor details, store them and inform them upon a request.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

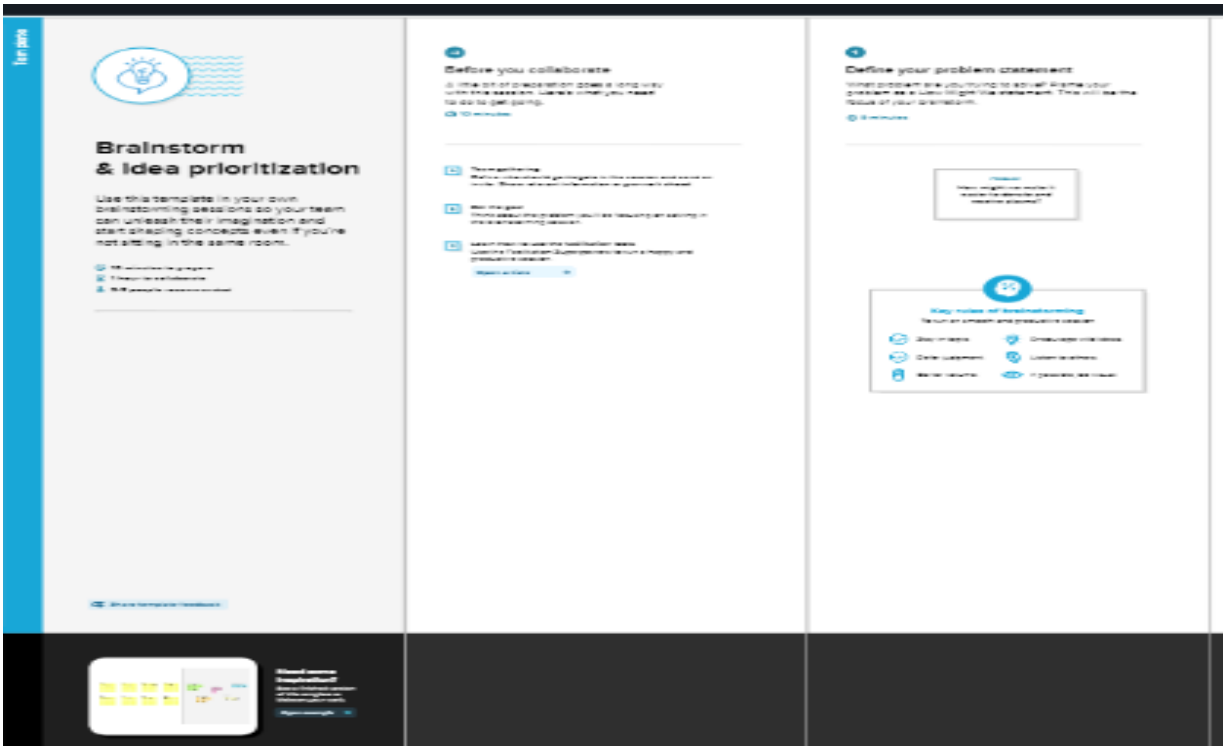
An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviors and attitudes. It is a useful tool to help teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.



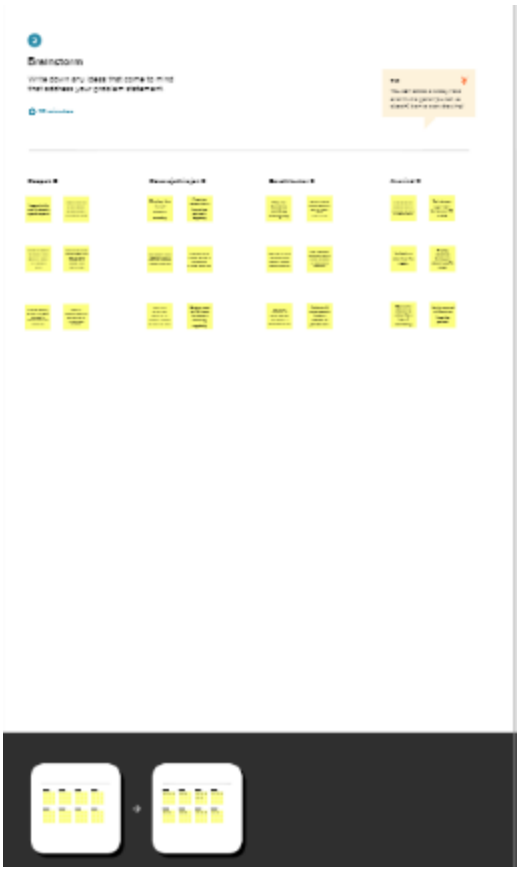
3.2 Ideation & Brainstorming

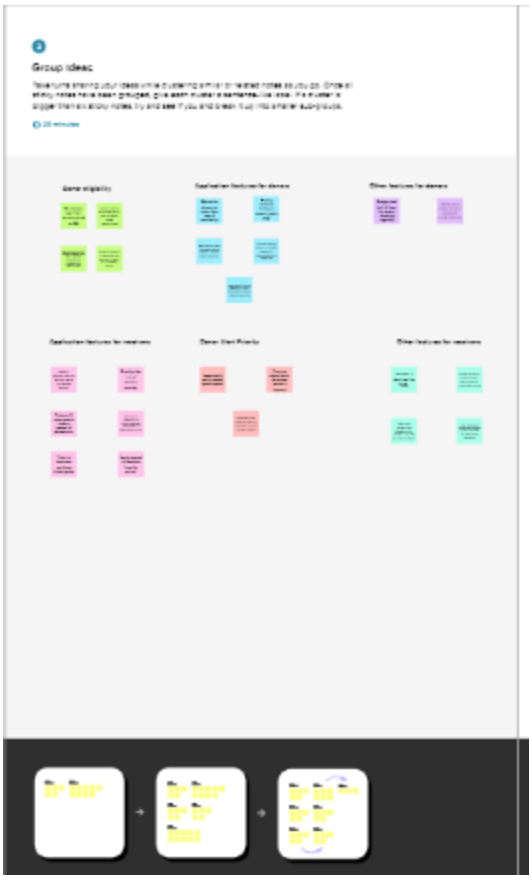
Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.
Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

Step-1: Team Gathering, Collaboration and Select the Problem Statement



Step-2: Brainstorm, Idea Listing and Grouping


Brainstorm



Step-3: Idea Prioritization

3.3 Proposed Solution

To debug the existing system" remove procedures that cause data redundancy" make navigational sequence proper. To provide information about audits on different levels and also to reflect the current work status depending on organization or date. To build strong password mechanism.

3.4 Problem Solution fit

4. REQUIREMENT ANALYSIS

4.1 Functional requirement

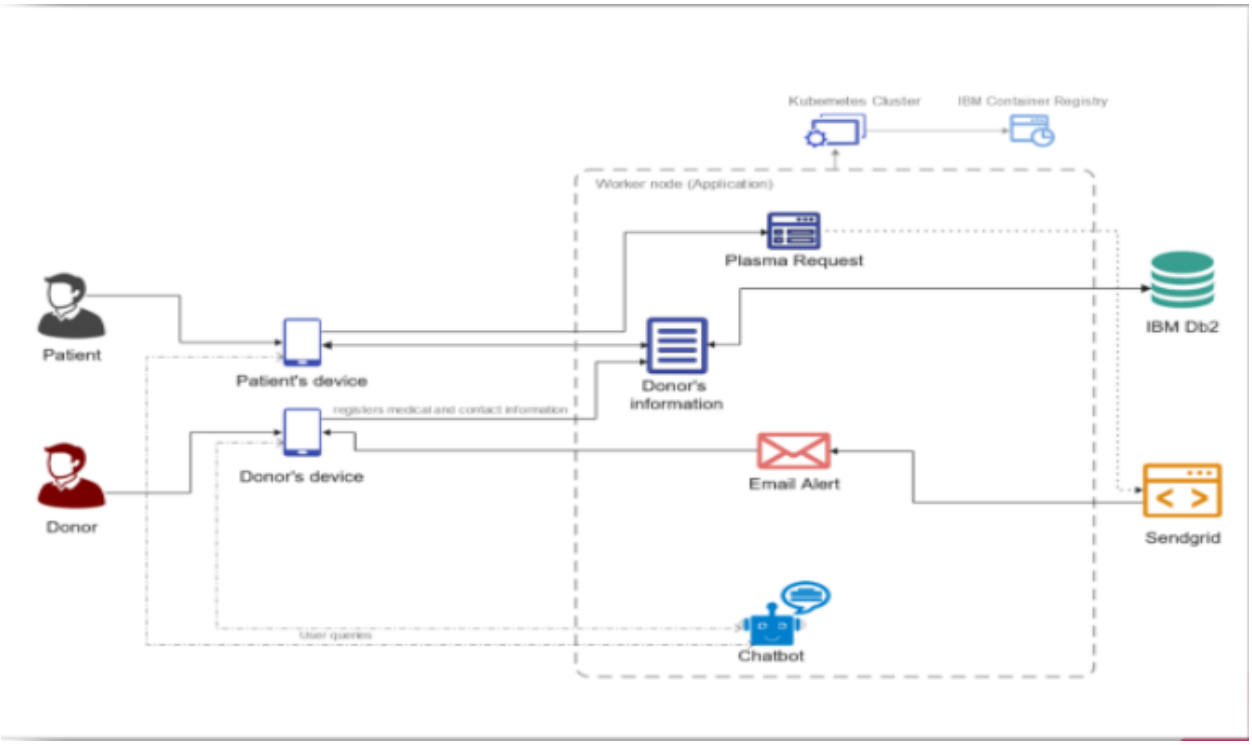
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through our website
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Email alert	Using send grid to notify users
FR-4	Eligibility of Donor	Proper medical information must 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 and contact information

4.2 Non-Functional requirements

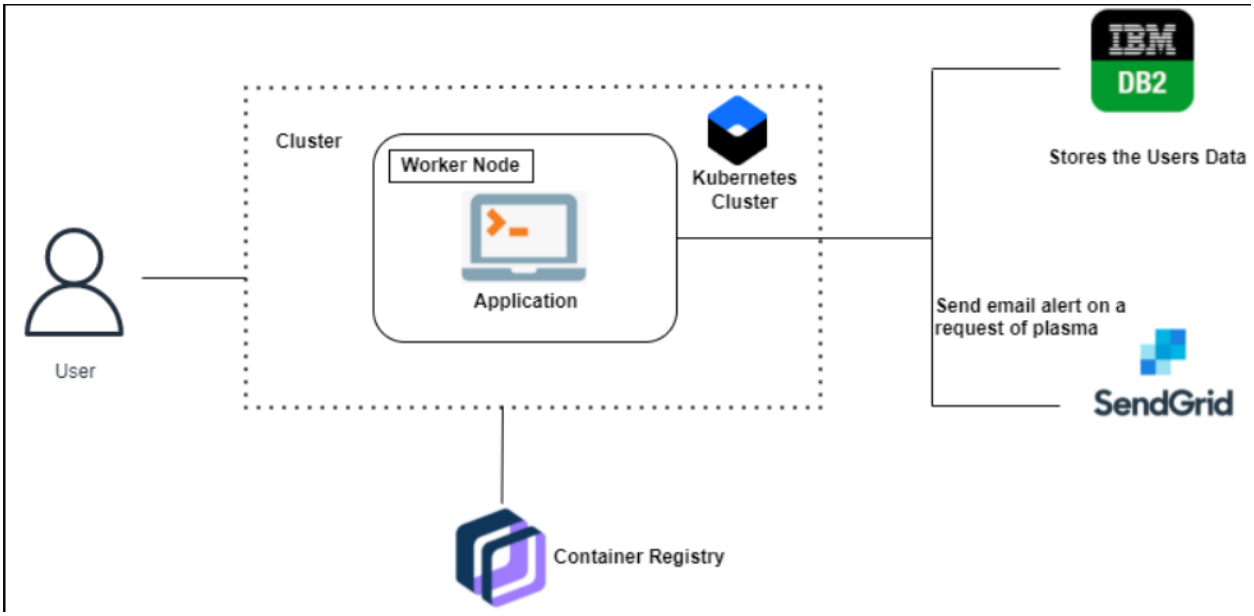
FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Anyone should be able to use the product effortlessly
NFR-2	**Security**	Sensitive details must be store securely (like medical information)
NFR-3	**Reliability**	Application must be usable even with lower bandwidth
NFR-4	**Performance**	Application must be able to perform up to at least 10,000 request per second
NFR-5	**Availability**	Application must be available for 24/7
NFR-6	**Scalability**	Application must be capable of handling huge number of users

5. PROJECT DESIGN

5.1 Data Flow Diagrams



5.2 Solution & Technical Architecture


IBM
DB2
Stores the Users Data
Cluster
Worker Node
Kubernetes Cluster
Application
User
Send email alert on a request of plasma
SendGrid
Container Registry

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

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	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

6.2 Sprint Delivery Schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application
Sprint-2		USN-3	As a user, I can register for the application through phone number and log in using it
Sprint-1	Login	USN-4	As a user, I can log into the application using my registered email & password
Sprint-2	Dashboard	USN-5	As a user, I want to enter/update my medical and contact information
Sprint-4	Chatbot	USN-6	As a user, I can ask questions to the chatbot
Sprint-3	Receive Alerts	USN-7	As a donor, I want to receive immediate alerts upon requests from patient
Sprint-2	Request Plasma	USN-8	As a patient, I want a list of donors
Sprint-4		USN-9	As a patient, I want to sort out donor list
Sprint-3		USN-10	As a patient, I want to request for plasma

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

7.1 Feature 1

Plasma Donor Application - Application to store plasma donor and recipient details

7.2 Feature 2

APP.PY

```
from flask import Flask, render_template, redirect, url_for,
request, session, flash

import ibm_db
import sendgrid
import os
from dotenv import load_dotenv
from sendgrid.helpers.mail import Mail, Email, To, Content


app = Flask(__name__)
#secret key required to maintain unique user sessions
```

```
  app.secret_key =
'f39c244d6c896864abe3310b839091799fed56007a438d637baf526007609f
e0'



  #establish connection with IBM Db2 Database

  connection =
ibm_db.connect("DATABASE=bludb;HOSTNAME=815fa4db-dc03-4c70-
869a-
a9cc13f33084.bs2io90l08kqb1od8lcg.databases.appdomain.cloud;POR
T=30367;SECURITY=SSL;SSLServerCertificate=DigiCertGlobalRootCA.
crt;UID=fzx82079;PWD=Gemfhl3b2DRTeUqB;", "", "")



  load_dotenv()   #load keys from .env

  sg = sendgrid.SendGridAPIClient(api_key =
os.environ.get('SENDGRID_API_KEY'))   #set SendGrid API Key

  from_email = Email("getplasmaproject@gmail.com")     #the
address that sends emails to the users









  @app.route('/')

  @app.route('/dashboard')

  def dashboard():
```

```
      if 'username' not in session:
          return redirect(url_for('signin'))  #ask user to
sign in if not done already

      return render_template('dashboard.html',
pred=session['username'])  #go to homepage if signed in




  @app.route('/signout')
  def signout():
      session.pop('username', None)   #remove user session
upon signing out
      return redirect('/')




  @app.route('/register')
  def register():
```

```
      if 'username' in session:   #inform user if they're
already signed in the same session
          flash('You are already signed in! Sign out to login
with a different account')
          return redirect(url_for('dashboard'))


      else:
          return render_template('register.html') #take user
to the registration page




  @app.route('/regform', methods=['POST'])
  def regform():
      i = [i for i in request.form.values()]  #get user
details from the registration form
      uname = i[0]
      uid = i[1]
      pwd = i[2]
```

```
      sql = 'SELECT * from donor WHERE email=?'   #check if
user is already registered

      pstmt = ibm_db.prepare(connection, sql)

      ibm_db.bind_param(pstmt, 1, uid)

      ibm_db.execute(pstmt)



      acc = ibm_db.fetch_assoc(pstmt)



      if acc:     #inform user to sign in if they have an
existing account

          flash('You are already a member. Please sign in
using your registered credentials')



      else:

          sql = 'INSERT INTO donor VALUES(?,?,?)' #insert
credentials of new user to the database

          pstmt = ibm_db.prepare(connection, sql)

          ibm_db.bind_param(pstmt, 1, uid)

          ibm_db.bind_param(pstmt, 2, pwd)

          ibm_db.bind_param(pstmt, 3, uname)

          ibm_db.execute(pstmt)
```

```
            to_email = To(uid)   #set user as recipient for
confirmation email
            subject = "Welcome to GetPlasma"
            content = Content("text/html", "<p>Hello " + uname +
",</p><p>Thank you for registering to the GetPlasma
Application!</p><p>If this wasn't you, then immediately report
to our <a href=\"mailto:getplasmaproject@gmail.com\">admin</a>
or just reply to this email.</p>")


            email = Mail(from_email, to_email, subject, content)
#construct email format
            email_json = email.get()    #get JSON-ready
representation of the mail object


            response = sg.client.mail.send.post(request_body =
email_json)  #send email by invoking an HTTP/POST request to
/mail/send



            flash('Registration Successful! Sign in using the
registered credentials to continue')
```

```
      return redirect(url_for('signin'))  #ask users to sign
in after registration









  @app.route('/signin')

  def signin():

      if 'username' in session:   #inform user if they're
already signed in the same session

          flash('You are already signed in! Sign out to login
with a different account')

          return redirect(url_for('dashboard'))

      return render_template('signin.html')   #take user to
the sign in page









  @app.route('/signinform', methods=['POST'])
```

```
  def signinform():

      uid = request.form['uid']   #get user id and password
from the form

      pwd = request.form['pwd']


      sql = 'SELECT uname from donor WHERE email=? AND pwd=?'
#check user credentials in the database

      pstmt = ibm_db.prepare(connection, sql)

      ibm_db.bind_param(pstmt, 1, uid)

      ibm_db.bind_param(pstmt, 2, pwd)

      ibm_db.execute(pstmt)


      acc = ibm_db.fetch_assoc(pstmt)


      if acc: #if the user is already registered to the
application

          session['username'] = acc['UNAME']

          flash('Signed in successfully!')

          return redirect(url_for('dashboard'))


      else:   #warn upon entering incorrect credentials
```

```
            flash('Incorrect credentials. Please try again!')
            return render_template('signin.html')
```

Style.css

```
@import
url('https://fonts.googleapis.com/css2?family=Poppins:wght@100;
200;300;400;500;600;700;800;900&display=swap');


  :root{
      --pri: #4158D0;
      --sec: #C850C0;
      --ter: #FFCC70;
  }

  .text-custom-accent{
```

```
    color: #E57373;
}

.text-custom-primary{
    color: var(--pri);
}

.text-custom-primary-light{
    color: #798CE8;
}

.text-custom-secondary{
    color: var(--sec)
}

.text-custom-tertiary{
    color: var(--ter)
}

.custom-primary{
```

```
    background-color: var(--pri);
}

.custom-primary-light{
    background-color: #798CE8;
}

.custom-secondary{
    background-color: var(--sec)
}

.custom-secondary-bg{
    background-color: #f48ded65;
}

.custom-tertiary{
    background-color: var(--ter)
}

.custom-accent{
```

```
        background-color: #E57373;
    }

    body{
        font-family: 'Poppins', Arial, Helvetica, sans-serif;
    }

    .main-bg{
        background-color: #4158D0;
        background-image: linear-gradient(43deg, #4158D0 0%,
#C850C0 46%, #FFCC70 100%);
    }

    .main-bg-medium{
        background-color: #667be2;
        background-image: linear-gradient(43deg, #8294ef 0%,
#ed85e6 46%, #ffdfa4 100%);
    }

    .main-bg-light{
```

```
        background-color: #798CE8;
        background-image: linear-gradient(43deg, #dfe5ff 0%, #ffeffe 46%, #fff2e1 100%);
    }

    .rounded-rem{
        border-radius: 1rem;
    }

    .nav-link:hover{
        color: var(--sec);
    }


    .glass{
        backdrop-filter: blur(10px);
        background: #ffffff88;
    }

    .glass-white{
```

```
    background: #ffffffaa;
}


.glass:disabled{
    background: #dddddd88;
}


.glass, .glass-white, .glass:disabled{
    backdrop-filter: blur(10px);
}
```

8. ADVANTAGES

- User friendliness , provided in the application with various controls.
- The system makes the overall protect management much easier and flexible.
- Readily upload the latest updates "allows users to download the alerts by clicking the url.
- It provides a high level of security with different levels of authentication.

9. CONCLUSION

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 plasma donors is a challenging issue almost worldwide, even in developed countries.

So, this project aims to create a web application where the donors register themselves by providing their general and medical information, so that they will be notified when a request for plasma is received from other users residing nearby, having an acceptable blood group.

10 .References

- **https://ieeexplore.ieee.org/document/9392739**
- **https://ieeexplore.ieee.org/document/9396012**
- **https://ieeexplore.ieee.org/document/9271296**