

# **PLASMA DONOR APPILICATION**

USING CLOUD

*A Project report submitted in partial fulfilment of 7<sup>th</sup> semester in degree  
of*

**BACHELOR OF ENGINEERING  
IN**

**COMPUTER SCIENCE AND ENGINEERING**

*Submitted by*

Team ID: PNT2022TMID43983

AMARNATH D	723719104006
DINESH KUMAR M	723719104024
MAHADEVAN V	723719104044
MOHAMMED ASHIK S	723719104046



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING  
UNIVERSITY COLLEGE OF ENGINEERING, ARIYALUR**

ANNA UNIVERSITY: CHENNAI 600025

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**UNIVERSITY COLLEGE OF ENGINEERING, ARIYALUR**  
**(A Constituent College of Anna University, Chennai)**



**BONAFIDE CERTIFICATE**

Certified that this project report "**PLASMA DONOR APPLICATION**" is the bonafide record work done by **Mr AMARNATH D(723714104006)**, **Mr DINESH KUMAR M(723719104024)**, **Mr MAHADEVAN V(723719104044)**, and **Mr MOHAMMED ASHIK S(723719104046)** for **IBM-NALAIYATHIRAN** in **VII** semester of **B.E.**, degree course in **ComputerScience and Engineering** branch during the academic year of 2022 - 2023.

**Staff-In charge**

**Evaluator**

**Head of the Department**

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**Amarnath D**

**Dinesh kumar M**

**Mahadevan V**

**Mohammed Ashik S**

## **ABSTRACT**

“Blood” one of the most important necessity of our life. The numbers of blood donor is very less when compared with other countries. In our project we propose a new and efficient way to overcome such outline. Such as just touch the button donor will be ask to enter an individual's details like name, phone number, age, weight, date of birth, blood group, address etc. At the emergency time of blood needed we can check for blood donor nearby by using GPS. Once the app user enter the blood group which he/she needed it will automatically show the donor nearby and send an alert message to the donor. In case if the first donor is not available it will automatically search the next donor which is present in queue. If the donor accept the request then an one time password (OTP) will be send to the donor to verify. Blood donation app provider list of donor in your city/area. Once the donor donate the blood it will automatically remove the donor detail for next three months.

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## **1.1 INTRODUCTION**

Recent researches show that many people are willing to help someone in need through money, blood and plasma donation, mother's milk donation etc., but they find it difficult to identify and approach the needy people who are not aware of technological innovations, including the use of social media

## **1.2 Existing System:**

Mother's milk is nature's perfect baby food. The immunity boosting antibodies are healthy enzymes are some advantages. The invaluable, importance of donating mother's milk has been brought to limelight by the online forum "Amirtham" created by Ms. Roopa, Tamilnadu. .

## **PROPOSED SYSTEM**

Though there are many android applications available for blood donation and blood bank management, they have not included any provision for Plasma donation. The existing system for Mother's milk donation is only based on What's app. These groups are limited to 100 members only. It is very difficult for the coordinator to add or remove users of various groups and manage other resources. Thus, this system suffers scalability and security issues. Hence, we propose an enhanced mobile application for Plasma, Mother's milk and Blood banks to administrate their users and resources easily and enhance security for information stored on the databases.

## **2. LITERATURE SURVEY**

### **2.1 Existing problem**

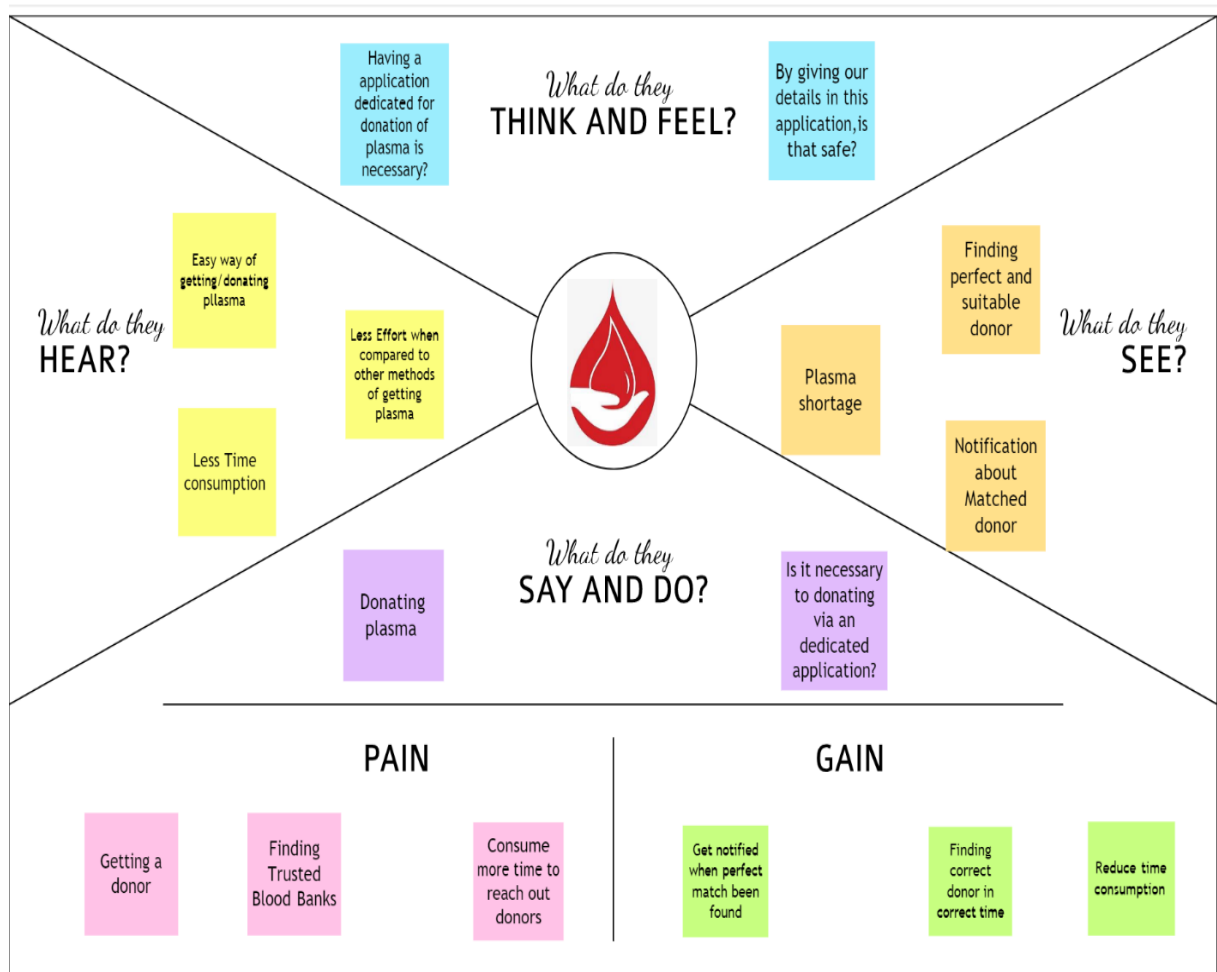
we often feel we need more than 24 hrs. a day to cope up with everything we have in our schedule. Well, that's not possible but reducing the time by changing the conventional method of reading news can help.

### **2.2 References**

G. Kiran Sai1, Kapil Kumar Department of ECE, Lingaya's Vidyapeeth, Faridabad, Haryana (India) has proposed a Database Management of Blood Bank & its Availability to Users through Mobile Terminal. This application timely updates info| the knowledge| the data} concerning the donors wherever the administrator accesses the full information regarding bank management system. Donor are going to be prompted to enter a human's details, like name, telephone number, and blood type. Blood bank App provides list of blood banks in their space. solely a registered person, with disposition to gift blood, are going to be able to access the service. In this application they are using the GPS technology to trace the way to the blood bank. The user will get the route to reach the desired location and therefore time can be saved.

## **3. IDEATION & PROPOSED SOLUTION**

### 3.1 Empathy Map Canvas



## 3.2 Ideation & Brainstorming

### IDEATION PHASE BRAINSTORM & IDEA PRIORITIZATION TEMPLATE

Date	11 October 2022
TEAM ID	PNT322THD493
PROJECT NAME	PLASMA DONOR APPLICATION
MAXIMUM MARKS	4 marks

**PROBLEM**  
How might we manage to create an application for plasma donation

## BRAINSTORM

### AMARNATH

Need factor for the plasma requests are sent only if donors blood group is compatible with the requested blood type and in the same city region.

Virtual assistant software can be included to clarify people's doubts regarding plasma donation

Creating features by allocating requests and not requests like another providing details of the user's profile to a person, providing provides emergency points for each request.

using a clinic management service to improve the performance

### MAHADEVAN

Providing a profile for the donor who donates for the first time and the people who donate at regular time.

If not removing his/her profile and make it as non valid profile for safety purposes.

To ensure whether the donor is free from side effects and is able to donate plasma again.

In the profile of the donor, it should be also mentioned when the plasma is extracted from the body.

### MOHAMMED ASHIK

All donors from the age of 18 weighing 45kg can register themselves in the app and create a profile

Opens for emergency or formal can be used for the receiver. In case of emergency the donors are limited through emergency calls from the app.

This app provides donors with functionalities like request form, donation history, user feedback and updates like blood as equipment, find donor location for the patient (i.e., receiver).

The receiver is able to find the precise location and contact details of the donor.

### DINESH KUMAR

The plasma donor's age, gender, location and other important details are collected in his profile.

Donor verification (whether he is capable to provide plasma from his blood) verification from any doctor.

The blood group details of both the donor and the receiver is to be collected before donation to ensure the right choice during donation.

The plasma notes in the body are to be assessed by a doctor before the donation. The donor verifies it and chooses are made in the app, only then the donation will be successful.

## GROUP IDEAS

### DONOR REGISTRATION

All donors from the age of 18 weighing 45kg can register themselves in the app and create a profile

The plasma donor's age, gender, location and other important details are collected in his profile.

### SAFETY PRECAUTION

To ensure whether the donor is free from side effects and is able to donate plasma again.

The plasma notes in the body are to be assessed by a doctor before the donation. The donor verifies it and chooses are made in the app, only then the donation will be successful.

### APP INTERFACE

Providing a profile for the donor who donates for the first time and the people who donate at regular time.

This app provides donors with functionalities like request form, donation history, user feedback and updates like blood as equipment, find donor location for the patient (i.e., receiver).

### FEATURES

Donor verification (whether he is capable to provide plasma from his blood) verification from any doctor.

If not removing his/her profile and make it as non valid profile for safety purposes.

virtual assistant software can be included to clarify people's doubts regarding plasma donation

using a clinic management service to improve the performance

Creating interest by stimulating people's needs with rewards like medical products, services or free meals and a person, people will provide emergency points for each payment.

This app provides donors with functionalities like request form, donation history, user feedback and updates like blood as equipment, find donor location for the patient (i.e., receiver).

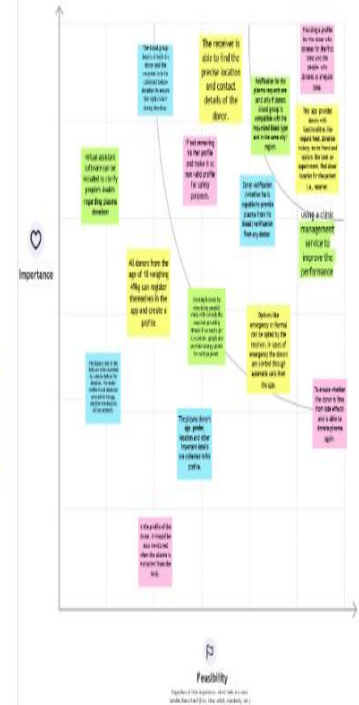
The receiver is able to find the precise location and contact details of the donor.

virtual assistant software can be included to clarify people's doubts regarding plasma donation

The receiver is able to find the precise location and contact details of the donor.

In the profile of the donor, it should be also mentioned when the plasma is extracted from the body.

## PRIORITIZE





### 3.3 Problem Solution fit

<b>1. CUSTOMER SEGMENT(S)</b> <small>Who is your customer? i.e. working parents of 0-5 y.o. kids</small> <div>Person who wants the facility to access NEWS in digital , with minimum amount of time.</div>	<b>6. CUSTOMER CONSTRAINTS</b> <small>What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices.</small> <div>User have only limited amount of time i.e his/her leisure time is only few minutes he needs to access NEWS.</div>	<b>5. AVAILABLE SOLUTIONS</b> <small>Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros &amp; cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking</small> <div>They have solutions like reading NEWS in any hard copy or having to access internet for the NEWS.</div>
--	---	---

<b>2. JOBS-TO-BE-DONE / PROBLEMS</b> <b>J&amp;P</b> <small>Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides.</small> <div>Problem should be fixed is making an app which gathers NEWS using Internet.</div>	<b>9. PROBLEM ROOT CAUSE</b> <b>RC</b> <small>What is the real reason that this problem exists? What is the back story behind the need to do this job? i.e. customers have to do it because of the change in regulations.</small> <div>In our current daily life we have only Few minutes of leisure time using the time for reading NEWS is better to now about our society. Hence an app for NEWS gathering need to be developed.</div>	<b>7. BEHAVIOUR</b> <b>BE</b> <small>What does your customer do to address the problem and get it done? i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)</small> <div>User can access NEWS with in few minutes to get informed about his needs.</div>
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## 4. REQUIREMENT ANALYSIS

<p><b>1. CUSTOMER SEGMENT(S)</b> <span>CS</span></p> <p>Anyone above the age of 21 can donate. We working on plasma therapy is process where blood is donated and received</p>	<p><b>6. CUSTOMER LIMITATIONS</b> <span>CL</span> <small>EG. BUDGET, DEVICES</small></p> <p>You can donate plasma every 28 days, up to 13 times per year. While the FDA does not allow donors to give plasma more frequently. Limited no of users can use it at the same time.</p>	<p><b>5. AVAILABLE SOLUTIONS</b> <span>AS</span> <small>PROS &amp; CONS</small></p> <p>It allows people to help others It is a relatively safe process The process can be very uncomfortable and It depletes the calcium levels in the body</p>
<p><b>2. PROBLEMS / PAINS</b> <span>PS</span> <small>• ITS FREQUENCY</small></p> <p>The side effects of plasma donation include nausea and dizziness and fainting in some cases. You may develop a raised bump or experience continued bleeding and bruising at the needle site too. Some people might experience pain and physical weakness after donating plasma.</p>	<p><b>9. PROBLEM ROOT / CAUSE</b> <span>RC</span></p> <p>Localized allergic reaction Air embolism and Hemolysis Bruising and discomfort</p>	<p><b>7. BEHAVIOR</b> <span>BE</span> <small>• ITS INTENSITY</small></p> <p>This app is used to make donation and receiving process easier so that anyone can easily access and use it. Intensity of this application is to connect donor and receiver in single platform. donor can fill the interest form to donate.</p>
<p><b>3. TRIGGERS TO ACT</b> <span>TR</span></p> <p>Many people needs plasma for their treatment. Plasma donation really used for covid affected people for recovering faster.</p> <p><b>4. EMOTIONS</b> <span>EM</span> <small>BEFORE / AFTER</small></p> <p>Donor get fear, anxiety prior to donation give way to largely positive emotional states like relaxation following donation</p>	<p><b>10. YOUR SOLUTION</b> <span>SL</span></p> <p>our app allows the user to request and donate plasma to requested person. Receiver can directly contact the donor and receive plasma. When you donate plasma, the blood that's drawn from your arm goes through a special machine to separate the different parts of your blood. Then we get plasma which can be used for transfusion.</p>	<p><b>8. CHANNELS of BEHAVIOR</b> <span>CH</span></p> <p><small>ONLINE</small> Online app allows user to make donation and receiver process easier. send request from anywhere anytime.</p> <p><small>OFFLINE</small> users to visit nearby camp or hospital and donate as well as receive plasma.</p>

## 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	User Registration	Registration through Form Registration through Gmail
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	User Login	User using his /her device to login to the app/website for reading news
FR-4	User search	For getting news he/she must need to search the news in the given search bar, Which will collect the news according to his search from the online sources like blog, e-news paper, Articles etc
FR-5	User Reads	Gathered news will be shown to the user in shortlines/ summary manner. Along with news Pictures, hyperlinks for the blog, article Or original publisher of the news is given
FR-6	User features	User can have lot of features like Like and share and Post features.

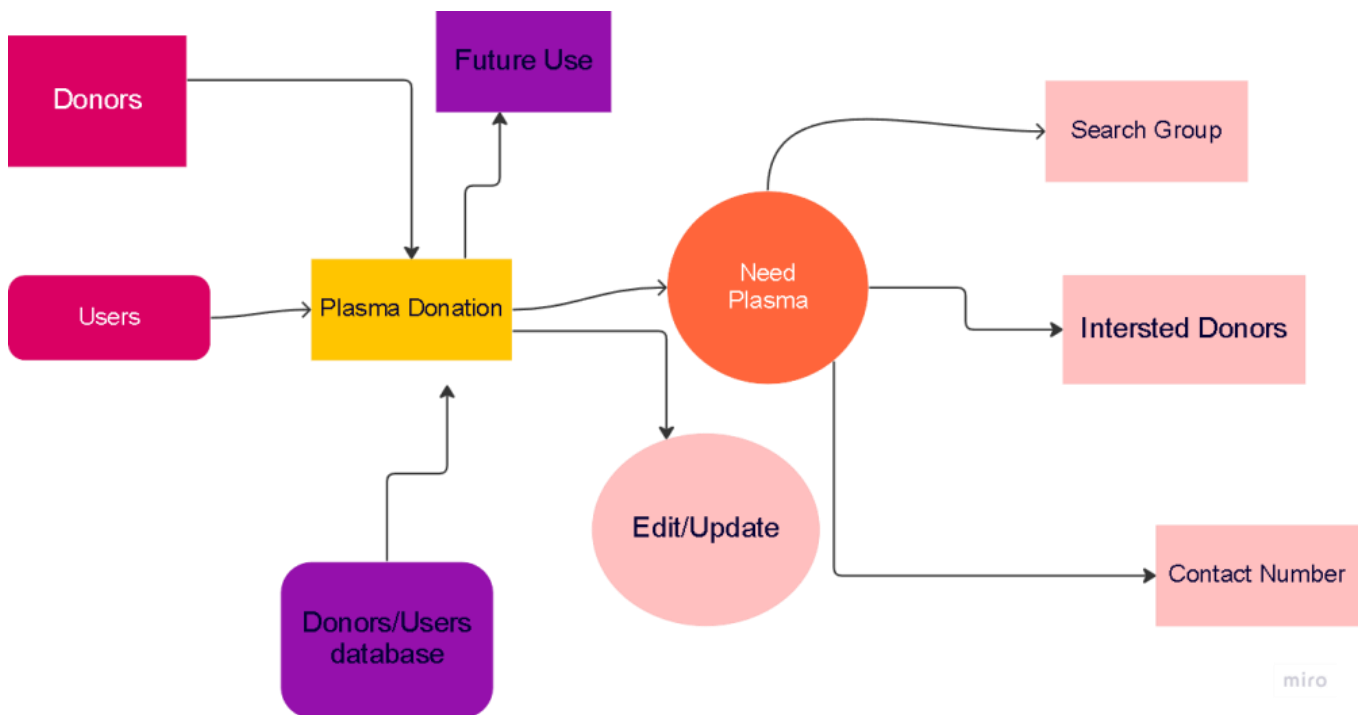
## 4.2 Non-functional Requirements:

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

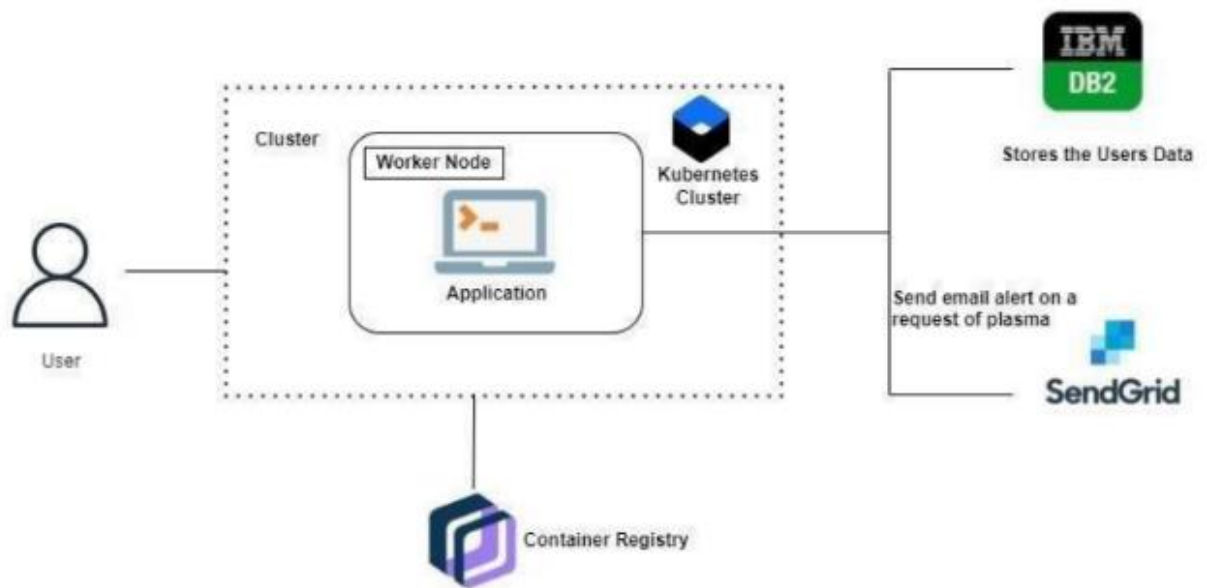
<b>FR No.</b>	<b>Non-Functional Requirement</b>	<b>Description</b>
NFR-1	<b>Usability</b>	For getting news he/she must need to search the news in the given search bar, Which will collect the news according to his search from the online sources like blog, e-news paper,Articles etc. Gathered news will be shown to the user in short lines/ summary manner. Along with news Pictures, hyperlinks for the blog, article Or original publisher of the news is given
NFR-2	<b>Security</b>	User's data for the Registration and data collected from his activity are maintained in high security and must be used for only productimprovement. Disclosing of his/her detail is considered as acrime hence they can take any legal actions against the service provider.
NFR-3	<b>Reliability</b>	News gathered and presented to the user are from only authorized publishers, and the sourcesare authentic. User can relay on this app for original news .
NFR-4	<b>Performance</b>	24*7 service with best cloud service, There will be no performance issue to the users.
NFR-5	<b>Availability</b>	Can download from Playstore and online websites.
NFR-6	<b>Scalability</b>	Hence it is cloud based system Scalability willbe no issue because Scalability is the prior feature of the cloud based services.

## 5. PROJECT DESIGN

### 5.1 Data Flow Diagrams



## 5.2 Solution & Technical Architecture





## 5.2 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		High	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password		High	Sprint-1
	Dashboard					
Customer (Web user)	Log in	USN-6	As a user, I can access the application through website	I can access my account / dashboard	High	
Customer Care Executive	24x7 service	USN-7	As a User, I may need help in using the app/website	Any help need	High	
Administrator	Owner/Chief executive	–	He/she will access the datas in the app	Product behaviour/Improvement purposes	Low	

## 6. PROJECT PLANNING & SCHEDULING

### 6.1 Sprint Planning & Estimation

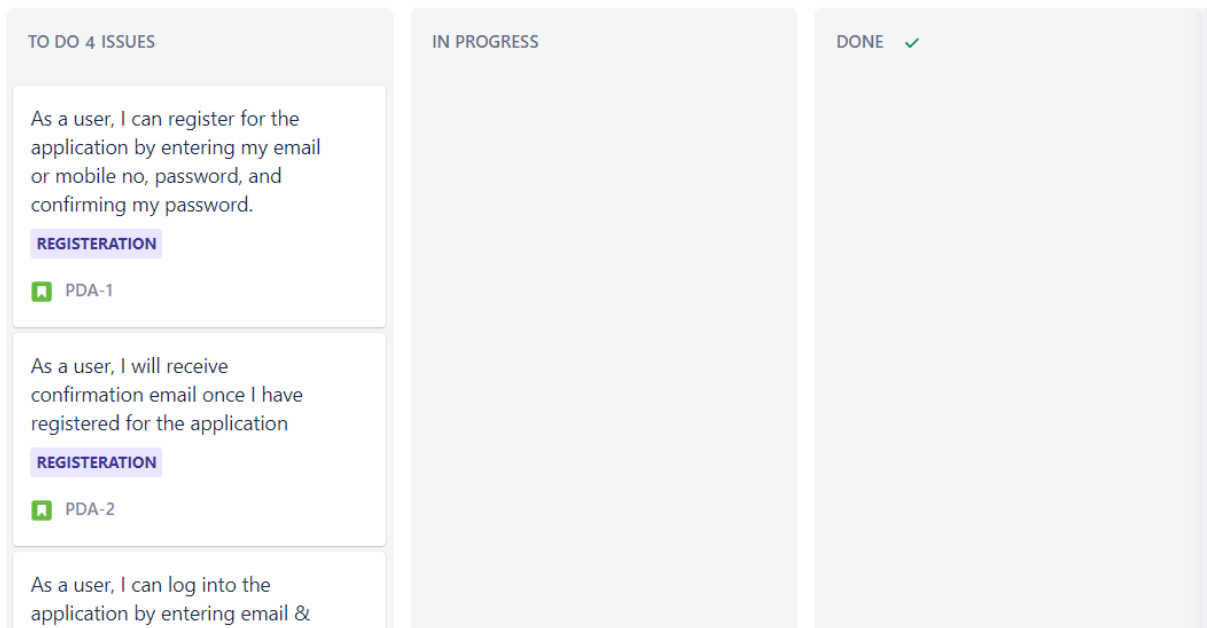
TITLE	DESCRIPTION	DATE
Literature Survey & Information Gathering	Literature survey on the selected project & gathering information by referring the, technical papers, research publications etc.	17 november 2022
Prepare Empathy Map	Prepare Empathy Map Canvas to capture the user Pains & Gains, Prepare list of problem statements	17 november 2022

Ideation Brain Storming	List the by organizing the brainstorming session and prioritize the top 3 ideas based on the feasibility & importance.	17 november 2022
Proposed Solution	Prepare the proposed solution document, which includes the novelty, feasibility of idea, business model, social impact, scalability of solution, etc.	17 november 2022
Problem Solution Fit	Prepare problem solution fit document	17 november 2022
Solution Architecture	Prepare solution architecture document.	17 november 2022
Customer Journey	Prepare the customer journey maps to	17 november 2022

	understand the user interactions & experiences with the application (entry to exit).	
Solution Requirement	Prepare the functional requirement document	17 november 2022
Data Flow Diagrams	Draw the data flow diagrams and submit for review.	17 november 2022
Technology Architecture	Prepare the technology architecture diagram.	17 november 2022
Prepare Milestone & Activity List	Prepare the milestones & activity list of the project.	17 november 2022
Project Development - Delivery of Sprint-1, 2, 3 & 4	Develop & submit the developed code by testing it.	17 november 2022



## 6.2 Reports from JIRA



## 7. CODING & SOLUTIONING

### DECOKER

```
FROM registry.access.redhat.com/ubi8/python-39:1

WORKDIR /opt/app-root/src

COPY Pipfile* /opt/app-root/src/

USER root
RUN yum -y install --disableplugin=subscription-manager wget \
&& yum --disableplugin=subscription-manager clean all

RUN pip3 install --upgrade pip==21.3.1 \
&& pip3 install --upgrade pipenv==2020.11.15 \
&& pipenv install --dev

# Update python command to point to python3 install
RUN alternatives --set python /usr/bin/python3

ENV FLASK_APP=server/__init__.py
ENV FLASK_DEBUG=true

COPY . /opt/app-root/src
```

```

COPY run-dev /bin
RUN chmod 777 /bin/run-dev

ARG bx_dev_user=root
ARG bx_dev_userid=1000

RUN BX_DEV_USER=$bx_dev_user
RUN BX_DEV_USERID=$bx_dev_userid
RUN if [ "$bx_dev_user" != root ]; then useradd -ms /bin/bash -u
$bx_dev_userid $bx_dev_user; fi

CMD ["/bin/bash"]

```

## DECOKER FILE TOOLS

```

WORKDIR /app
ADD . /app

RUN set -e; \
apk add --no-cache --virtual .build-deps \
gcc \
libc-dev \
linux-headers \
mariadb-dev \
python3-dev \
postgresql-dev \
;
COPY requirements.txt /app
RUN pip install -r requirements.txt
CMD ["python","app.py"]

```

## Drashboard-adminuser.yaml

```

apiVersion: v1
kind: ServiceAccount
metadata:
  name: admin-user
  namespace: kubernetes-
  dashboard
---
apiVersion: v1
kind: Secret
metadata:
  name: admin-user-token
  namespace: kubernetes-
  dashboard
annotations:
  kubernetes.io/service-
  account.name: admin-user
  type: kubernetes.io/service-
  account-token

```

```
---
apiVersion:
rbac.authorization.k8s.io/v1
kind: ClusterRoleBinding
metadata:
name: admin-user
roleRef:
apiGroup:
rbac.authorization.k8s.io
kind: ClusterRole
name: cluster-admin
subjects:
- kind: ServiceAccount
name: admin-user
namespace: kubernetes-
```

## **FLASK DEPLOYMENT**

```
kind: Deployment
metadata:
name: flask-app

spec:
replicas: 3
selector:
matchLabels:
app: flask-app
template:
metadata:
labels:
app: flask-app

spec:
containers:
- name: webpage
image: rajkiranss/flask
imagePullPolicy: Never
ports:
- containerPort: 5000
protocol: TCP
```

## **FLASK\_INGRESS**

```
kind: Ingress
metadata:
name: flask-app-ingress
annotations:
kubernetes.io/ingress.class: nginx
nginx.ingress.kubernetes.io/ssl-redirect: "false"
```

```
spec:
  # ingressClassName: nginx
  rules:
  - http:
    paths:
    - backend:
        service:
          name: flask-app-service
        port:
          number: 5000
        path: /
        pathType: Prefix
```

## FLASK\_SERVICE

```
kind: Service
metadata:
  name: flask-
  app-service
spec:
  type:
    ClusterIP
  ports:
  - port: 5000
  selector:
    app: flask-
    app
```

## IBM-DEPLOYMENT

```
kind: Deployment
metadata:
  name: flask-deploy
```

```
spec:
  replicas: 3
  selector:
    matchLabels:
      app: flask-deploy
  template:
    metadata:
      labels:
        app: flask-deploy
```

```
spec:
  containers:
  - name: web
    image: jp.icr.io/webpage/web
    imagePullPolicy: Always
    ports:
    - containerPort: 5000
  protocol: TCP
```

## 8.TESTING

### 8.1Test Cases

Test case	feature	component	Test scenario	Expected result	Actual result	status	comments	bug	Executed by
Sign in	Functional	Login page	Verify user can see the sign in option	can visible	Yes visible	pass	successful	-	Amarnath, Dinesh Karthick
Sign up	Functional	Login page	Verify user has the option to sign up	Can visible	Yes visible	pass	Successful	-	Mahadevan, Dinesh kumar
Dashboard	Functional	Login page	Verify user has the option to forgot password	Yes the option is available	Option is available	pass	Successful	-	Mohammed Ashik,Dinesh Kumar

Register	Functional	Home page	Verify user can get the plasma info	Blood groups	404 error	Fail	unsuccessful	App integration problem	Amarnath ,Dhanraj prabhu
Types of plasma available in the bank.	Functional	Fetch details	Types of plasma available	O +ive, A +ive, B +ive	Hover buttons will be shown.	Yes	successful	-	Amarnath, Mahadevan

## 8.2 User Acceptance Testing

NFT - Risk Assessment					
S.No	Project Name	Scope/feature	Functional Changes	Hardware Changes	Software Changes
1	Plasma Donor	New	Low	No Changes	Moderate

NFT - Detailed Test Plan				
S.No	Project Overview	NFT Test approach	Assumptions/Dependencies/Risks	Approvals/SignOff
1	Login Page	1) Open the Plasma Donor Applicaion 2) Login with user Credentials	No Risks	N/A
2	Signup Page	1) Open the Plasma Donor Applicaion 2) Enter the Details and Create a new User	No Risks	N/A
3	Personal Details Page	1) Log in to Plasma Donor Applicaion 2) Enter all the pesonal details and availability details	No Risks	N/A
4	Search Donor Page	1) Log in to Plasma Donor Applicaion 2) Enter City and Blood type 3) All the donor details with city and blood type is displayed.	No Risks	N/A
5	Requests Page	1) Log in to Plasma Donor Applicaion 2) All the requests for the user is recieved	No Risks	N/A
5	Email Acknowledgement	1) Mails are Sent to the Requitered user 2) Mails are Sent to the Requestes user	No Risks	N/A

End Of Test Report					
S.No	Project Overview	NFT Test approach	NFR - Met	Test Outcome	GO/NO-GO decision
1	Plasma Donor	1) Log in to Plasma Donor Applicaion 2) Test for all Testcases 3) Log out of the Plasma Donor Applicaion	YES	Test Passed	GO

## 9.RESULT

Plasma donor application using cloud is developed and executed at the level of completed successfully.

## 9.1 Performance Metrics

Section	Total Cases	Not Tested	Fail	Pass
Home Page	6	0	0	6
Login Page	5	0	0	5
Register Page	7	0	0	7
Login Dashboard	5	0	0	5

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
Flask	2	2	0	0	4
Cloud account creation	2	1	1	0	3
Connecting with Db2	4	3	1	0	8
Sendgrid	2	3	0	1	6
Docker	2	1	0	0	3
Totals	12	10	2	1	25

## **10. ADVANTAGES & DISADVANTAGES**

### **Advantages:-**

- >Simple User Interface .
- >It alleviates the burden of coordinator to manage Users and resources easily.
- >Compared to all other mobile applications, it incorporates provisions for Plasma and mother's milk donation.
- >Attracts more, number of users as it is available in the form of Mobile application instead of What's app group.
- >Usage of this application will greatly reduce time in selecting the right donor.

### **Disadvantages:-**

- ❖ Some apps demand premium subscription from user.
- ❖ Occurance of Advertisment disturb the user.
- ❖ Sometimes the donorgives brief information.
- ❖ Confuse the user lead to misconception.
- ❖ Fake news may mislead the readers.

## **11. CONCLUSION**

Enhanced mobile application for plasma, Mother's milk and Blood has been developed to help the administrator to attract more donors and recipients and make user management an easy task. This mobile application will attract more users as it is user friendly and greatly reduces scalability issues especially in the case of Mother's milk donation. Not everyone in the world can donate Mother's milk. Only Feeding moms can donate mother's milk. Thus, we have successfully designed and developed the Android mobile application to ease the process of becoming a donor and recipient of PMB bank.

## **12. FUTURE SCOPE**

In the future ,the scope clearly defines the boundaries of the proposed system. The functional areas of this application that lies under the scope of the proposed system are the management of the availability of donors, hospitals, blood banks to the user or member at any time.



## APPENDIX

### Source Code

```
import json

from sendgrid import SendGridAPIClient
from sendgrid.helpers.mail import *

# NOTE: you will need move this file to the root
# directory of this project to execute properly.

def build_hello_email():
    ## Send a Single Email to a Single Recipient

    message = Mail(from_email=From('from@example.com', 'Example From
    Name'),
    to_emails=To('to@example.com', 'Example To Name'),
    subject=Subject('Sending with SendGrid is Fun'),
    plain_text_content=PlainTextContent('and easy to do anywhere, even
    with Python'),
    html_content=HtmlContent('<strong>and easy to do anywhere, even with
    Python</strong>'))

    try:
        print(json.dumps(message.get(), sort_keys=True, indent=4))
        return message.get()

    except SendGridException as e:
        print(e.message)

    mock_personalization = Personalization()
    personalization_dict = get_mock_personalization_dict()

    for cc_addr in personalization_dict['cc_list']:
        mock_personalization.add_to(cc_addr)

    for bcc_addr in personalization_dict['bcc_list']:
        mock_personalization.add_bcc(bcc_addr)

    for header in personalization_dict['headers']:
        mock_personalization.add_header(header)

    for substitution in personalization_dict['substitutions']:
        mock_personalization.add_substitution(substitution)

    for arg in personalization_dict['custom_args']:
        mock_personalization.add_custom_arg(arg)

    mock_personalization.subject = personalization_dict['subject']
    mock_personalization.send_at = personalization_dict['send_at']
```

```

message.add_personalization(mock_personalization)

return message

def get_mock_personalization_dict():
    """Get a dict of personalization mock."""
    mock_pers = dict()

    mock_pers['to_list'] = [To("test1@example.com",
    "Example User"),
    To("test2@example.com",
    "Example User")]

    mock_pers['cc_list'] = [To("test3@example.com",
    "Example User"),
    To("test4@example.com",
    "Example User")]

    mock_pers['bcc_list'] = [To("test5@example.com"),
    To("test6@example.com")]

    mock_pers['subject'] = ("Hello World from the Personalized "
    "SendGrid Python Library")

    mock_pers['headers'] = [Header("X-Test", "test"),
    Header("X-Mock", "true")]

    mock_pers['substitutions'] = [Substitution("%name%", "Example User"),
    Substitution("%city%", "Denver")]

    mock_pers['custom_args'] = [CustomArg("user_id", "343"),
    CustomArg("type", "marketing")]

    mock_pers['send_at'] = 1443636843
    return mock_pers

def build_multiple_emails_personalized():
    # Note that the domain for all From email addresses must match

    message = Mail(from_email=From('from@example.com', 'Example From
    Name'),
    subject=Subject('Sending with SendGrid is Fun'),
    plain_text_content=PlainTextContent('and easy to do anywhere, even
    with Python'),
    html_content=HtmlContent('<strong>and easy to do anywhere, even with
    Python</strong>'))

    mock_personalization = Personalization()
    mock_personalization.add_to(To('test@example.com', 'Example User 1'))
    mock_personalization.add_cc(Cc('test1@example.com', 'Example User
    2'))
    message.add_personalization(mock_personalization)

```

```

mock_personalization_2 = Personalization()
mock_personalization_2.add_to(To('test2@example.com', 'Example User
3'))
mock_personalization_2.set_from(From('from@example.com', 'Example
From Name 2'))
mock_personalization_2.add_bcc(Bcc('test3@example.com', 'Example User
4'))
message.add_personalization(mock_personalization_2)

try:
print(json.dumps(message.get(), sort_keys=True, indent=4))
return message.get()

except SendGridException as e:
print(e.message)

return message

def build_attachment1():
    """Build attachment mock. Make sure your content is base64 encoded
    before passing into attachment.content.
    Another example: https://github.com/sendgrid/sendgrid-
    python/blob/HEAD/use\_cases/attachment.md"""

    attachment = Attachment()
    attachment.file_content =
("TG9yZW0gaXBzdW0gZG9sb3Igc2l0IGFtZXQsIGNvbnNl"
"Y3RldHVyIGFkaXBpc2NpbmcgZWxpdC4gQ3JhcyBwdW12")
    attachment.file_type = "application/pdf"
    attachment.file_name = "balance_001.pdf"
    attachment.disposition = "attachment"
    attachment.content_id = "Balance Sheet"
    return attachment

def build_attachment2():
    """Build attachment mock."""
    attachment = Attachment()
    attachment.file_content = "BwdW"
    attachment.file_type = "image/png"
    attachment.file_name = "banner.png"
    attachment.disposition = "inline"
    attachment.content_id = "Banner"
    return attachment

def build_kitchen_sink():
    """All settings set"""
    from sendgrid.helpers.mail import (
    Mail, From, To, Cc, Bcc, Subject, PlainTextContent,
    HtmlContent, SendGridException, Substitution,
    Header, CustomArg, SendAt, Content, MimeType, Attachment,
    FileName, FileContent, FileType, Disposition, ContentId,
    TemplateId, Section, ReplyTo, Category, BatchId, Asm,
    GroupId, GroupsToDisplay, IpPoolName, MailSettings,

```

```

BccSettings, BccSettingsEmail, BypassListManagement,
FooterSettings, FooterText, FooterHtml, SandBoxMode,
SpamCheck, SpamThreshold, SpamUrl, TrackingSettings,
ClickTracking, SubscriptionTracking, SubscriptionText,
SubscriptionHtml, SubscriptionSubstitutionTag,
OpenTracking, OpenTrackingSubstitutionTag, Ganalytics,
UtmSource, UtmMedium, UtmTerm, UtmContent, UtmCampaign)
import time
import datetime

message = Mail()

# Define Personalizations

message.to = To('test1@sendgrid.com', 'Example User1', p=0)
message.to = [
To('test2@sendgrid.com', 'Example User2', p=0),
To('test3@sendgrid.com', 'Example User3', p=0)
]

message.cc = Cc('test4@example.com', 'Example User4', p=0)
message.cc = [
Cc('test5@example.com', 'Example User5', p=0),
Cc('test6@example.com', 'Example User6', p=0)
]

message.bcc = Bcc('test7@example.com', 'Example User7', p=0)
message.bcc = [
Bcc('test8@example.com', 'Example User8', p=0),
Bcc('test9@example.com', 'Example User9', p=0)
]

message.subject = Subject('Sending with SendGrid is Fun 0', p=0)

message.header = Header('X-Test1', 'Test1', p=0)
message.header = Header('X-Test2', 'Test2', p=0)
message.header = [
Header('X-Test3', 'Test3', p=0),
Header('X-Test4', 'Test4', p=0)
]

message.substitution = Substitution('%name1%', 'Example Name 1', p=0)
message.substitution = Substitution('%city1%', 'Example City 1', p=0)
message.substitution = [
Substitution('%name2%', 'Example Name 2', p=0),
Substitution('%city2%', 'Example City 2', p=0)
]

message.custom_arg = CustomArg('marketing1', 'true', p=0)
message.custom_arg = CustomArg('transactional1', 'false', p=0)
message.custom_arg = [
CustomArg('marketing2', 'false', p=0),
CustomArg('transactional2', 'true', p=0)
]

```

```

message.send_at = SendAt(1461775051, p=0)

message.to = To('test10@example.com', 'Example User10', p=1)
message.to = [
  To('test11@example.com', 'Example User11', p=1),
  To('test12@example.com', 'Example User12', p=1)
]

message.cc = Cc('test13@example.com', 'Example User13', p=1)
message.cc = [
  Cc('test14@example.com', 'Example User14', p=1),
  Cc('test15@example.com', 'Example User15', p=1)
]

message.bcc = Bcc('test16@example.com', 'Example User16', p=1)
message.bcc = [
  Bcc('test17@example.com', 'Example User17', p=1),
  Bcc('test18@example.com', 'Example User18', p=1)
]

message.header = Header('X-Test5', 'Test5', p=1)
message.header = Header('X-Test6', 'Test6', p=1)
message.header = [
  Header('X-Test7', 'Test7', p=1),
  Header('X-Test8', 'Test8', p=1)
]

message.substitution = Substitution('%name3%', 'Example Name 3', p=1)
message.substitution = Substitution('%city3%', 'Example City 3', p=1)
message.substitution = [
  Substitution('%name4%', 'Example Name 4', p=1),
  Substitution('%city4%', 'Example City 4', p=1)
]

message.custom_arg = CustomArg('marketing3', 'true', p=1)
message.custom_arg = CustomArg('transactional3', 'false', p=1)
message.custom_arg = [
  CustomArg('marketing4', 'false', p=1),
  CustomArg('transactional4', 'true', p=1)
]

message.send_at = SendAt(1461775052, p=1)

message.subject = Subject('Sending with SendGrid is Fun 1', p=1)

# The values below this comment are global to entire message

message.from_email = From('help@twilio.com', 'Twilio SendGrid')

message.reply_to = ReplyTo('help_reply@twilio.com', 'Twilio SendGrid Reply')

message.subject = Subject('Sending with SendGrid is Fun 2')

```

```

message.content = Content(MimeType.text, 'and easy to do anywhere,
even with Python')
message.content = Content(MimeType.html, '<strong>and easy to do
anywhere, even with Python</strong>')
message.content = [
Content('text/calendar', 'Party Time!!!'),
Content('text/custom', 'Party Time 2!!!')
]

message.attachment = Attachment(FileContent('base64 encoded content
1'),
FileName('balance_001.pdf'),
FileType('application/pdf'),
Disposition('attachment'),
ContentId('Content ID 1'))
message.attachment = [
Attachment(FileContent('base64 encoded content 2'),
FileName('banner.png'),
FileType('image/png'),
Disposition('inline'),
ContentId('Content ID 2')),
Attachment(FileContent('base64 encoded content 3'),
FileName('banner2.png'),
FileType('image/png'),
Disposition('inline'),
ContentId('Content ID 3'))
]

message.template_id = TemplateId('13b8f94f-bcae-4ec6-b752-
70d6cb59f932')

message.section = Section('%section1%', 'Substitution for Section 1
Tag')
message.section = [
Section('%section2%', 'Substitution for Section 2 Tag'),
Section('%section3%', 'Substitution for Section 3 Tag')
]

message.header = Header('X-Test9', 'Test9')
message.header = Header('X-Test10', 'Test10')
message.header = [
Header('X-Test11', 'Test11'),
Header('X-Test12', 'Test12')
]

message.category = Category('Category 1')
message.category = Category('Category 2')
message.category = [
Category('Category 1'),
Category('Category 2')
]

message.custom_arg = CustomArg('marketing5', 'false')

```

```

message.custom_arg = CustomArg('transactional5', 'true')
message.custom_arg = [
    CustomArg('marketing6', 'true'),
    CustomArg('transactional6', 'false')
]

message.send_at = SendAt(1461775053)

message.batch_id = BatchId("HkJ5yLYULb7Rj8GKSx7u025ouWVlMgAi")

message.asm = Asm(GroupId(1), GroupsToDisplay([1,2,3,4]))

message.ip_pool_name = IpPoolName("IP Pool Name")

mail_settings = MailSettings()
mail_settings.bcc_settings = BccSettings(False,
    BccSettingsTo("bcc@twilio.com"))
mail_settings.bypass_list_management = BypassListManagement(False)
mail_settings.footer_settings = FooterSettings(True,
    FooterText("w00t"), FooterHtml("<string>w00t!<strong>"))
mail_settings.sandbox_mode = SandBoxMode(True)
mail_settings.spam_check = SpamCheck(True, SpamThreshold(5),
    SpamUrl("https://example.com"))
message.mail_settings = mail_settings

tracking_settings = TrackingSettings()
tracking_settings.click_tracking = ClickTracking(True, False)
tracking_settings.open_tracking = OpenTracking(True,
    OpenTrackingSubstitutionTag("open_tracking"))
tracking_settings.subscription_tracking = SubscriptionTracking(
    True,
    SubscriptionText("Goodbye"),
    SubscriptionHtml("<strong>Goodbye!</strong>"),
    SubscriptionSubstitutionTag("unsubscribe"))
tracking_settings.ganalytics = Ganalytics(
    True,
    UtmSource("utm_source"),
    UtmMedium("utm_medium"),
    UtmTerm("utm_term"),
    UtmContent("utm_content"),
    UtmCampaign("utm_campaign"))
message.tracking_settings = tracking_settings

return message

def send_multiple_emails_personalized():
    # Assumes you set your environment variable:
    # https://github.com/sendgrid/sendgrid-
    python/blob/HEAD/TROUBLESHOOTING.md#environment-variables-and-your-
    sendgrid-api-key
    message = build_multiple_emails_personalized()
    sendgrid_client =
    SendGridAPIClient(os.environ.get('SENDGRID_API_KEY'))
    response = sendgrid_client.send(message=message)

```

```

print(response.status_code)
print(response.body)
print(response.headers)

def send_hello_email():
# Assumes you set your environment variable:
# https://github.com/sendgrid/sendgrid-
python/blob/HEAD/TROUBLESHOOTING.md#environment-variables-and-your-
sendgrid-api-key
message = build_hello_email()
sendgrid_client =
SendGridAPIClient(os.environ.get('SENDGRID_API_KEY'))
response = sendgrid_client.send(message=message)
print(response.status_code)
print(response.body)
print(response.headers)

def send_kitchen_sink():
# Assumes you set your environment variable:
# https://github.com/sendgrid/sendgrid-
python/blob/HEAD/TROUBLESHOOTING.md#environment-variables-and-your-
sendgrid-api-key
message = build_kitchen_sink()
sendgrid_client =
SendGridAPIClient(os.environ.get('SENDGRID_API_KEY'))
response = sendgrid_client.send(message=message)
print(response.status_code)
print(response.body)
print(response.headers)

## this will actually send an email
# send_hello_email()

## this will send multiple emails
# send_multiple_emails_personalized()

## this will only send an email if you set SandBox Mode to False
# send_kitchen_sink()

```

## DEPLOYMENT TOOLS IN APP IN CLOUD

```

FROM registry.access.redhat.com/ubi8/python-39:1

WORKDIR /opt/app-root/src

COPY Pipfile* /opt/app-root/src/

USER root
RUN yum -y install --disableplugin=subscription-manager wget \

```



```

&& yum --disableplugin=subscription-manager clean all

RUN pip3 install --upgrade pip==21.3.1 \
&& pip3 install --upgrade pipenv==2020.11.15 \
&& pipenv install --dev

# Update python command to point to python3 install
RUN alternatives --set python /usr/bin/python3

ENV FLASK_APP=server/__init__.py
ENV FLASK_DEBUG=true

COPY . /opt/app-root/src
COPY run-dev /bin
RUN chmod 777 /bin/run-dev

ARG bx_dev_user=root
ARG bx_dev_userid=1000

RUN BX_DEV_USER=$bx_dev_user
RUN BX_DEV_USERID=$bx_dev_userid
RUN if [ "$bx_dev_user" != root ]; then useradd -ms /bin/bash -u
$bx_dev_userid $bx_dev_user; fi

CMD ["/bin/bash"]

```

## DEPOLYMENT IN APP IN CLOUD

```

WORKDIR /app
ADD . /app

RUN set -e; \
apk add --no-cache --virtual .build-deps \
gcc \
libc-dev \
linux-headers \
mariadb-dev \
python3-dev \
postgresql-dev \
;
COPY requirements.txt /app
RUN pip install -r requirements.txt
CMD ["python","app.py"]

```

## Templates

### About.html:

### LOGIN HTML

```
<head>
<meta charset="UTF-8">
<meta http-equiv="X-UA-Compatible" content="IE=edge">
<meta name="viewport" content="width=device-width, initial-
scale=1.0">
<title>Document</title>
</head>

<style>
body {
background-image: linear-gradient(92.7deg, rgb(243, 178, 178) 8.5%,
rgb(246, 244, 198) 90.2%);
font-family: Georgia, 'Times New Roman', Times, serif;
}

button:hover {
background-color: dark blue;
border-color: black;
}

h1 {
font-family: 'Courier New', Courier, monospace;
color: purple;
top: 10em;
}

.container1 {
border: 2px solid black;
border-color: black;
border-radius: 10px;
width: 400px;
}

.top {
margin-top: 100px;
}

input:hover {
border-color: rgb(25, 20, 20);
}

a {
text-decoration: none;
}

a:link {
```

```
color: #006600;
text-decoration: none;
}
```

```
a:visited {
color: rgb(215, 117, 92);
text-decoration: none;
}
```

```
a:hover {
color: rgb(128, 105, 255);
text-decoration: none;
}
```

```
a:active {
color: rgb(202, 99, 75);
text-decoration: none;
}
</style>
```

```
<body>
<center>
<h1 class="top">IBM</h1>
<div class="container1">
<br>
<h1>LOGIN</h1>
<form action="http://localhost:5000/login" method="POST">
<table>
<tr>
<td><label for="text">USERNAME</label></td>
<td><input type="text" name="username" placeholder="enter user name"
/></td>
</tr>
<tr>
<td><label for="text">PASSWORD</label></td>
<td><input type="text" name="password" placeholder="enter valid
password"></td>
</tr>
</table>
<br>
<button type="submit">SUMBIT</button>
</form>
<br>
</div>
<br>
<label for="text">New User!! <br> <br> <b><a
href="http://http://localhost:5000">SIGN UP</a></b></label>
</center>
</body>

</html>
```

## REGISTER HTML

```
<!DOCTYPE  
html>
```

```
<html>  
  
<head>  
<meta charset="UTF-8">  
<meta http-equiv="X-UA-Compatible" content="IE=edge">  
<meta name="viewport" content="width=device-width, initial-  
scale=1.0">  
<title>REGISTRATION PAGE</title>  
</head>  
<style>  
body {  
background-image: linear-gradient(92.7deg, rgb(59, 170, 201)  
8.5%, rgb(246, 244, 198) 90.2%);  
font-family: 'Times New Roman', Times, serif;  
}  
  
input:hover {  
border-color: rgb(25, 20, 20);  
}  
  
button:hover {  
background-color: dark blue;  
border-color: black;  
}  
  
h1 {  
font-family: 'Courier New', Courier, monospace;  
color: darkolivegreen;  
}  
  
#qwerty {  
margin-top: 15em;  
}  
</style>  
  
<body>  
<center id="qwerty">  
<H1>REGISTRATION FORM</H1>  
<!-- -->  
<form action="http://localhost:5000/register" method="POST">  
<table>  
<tr>  
<td><label for="text">USERNAME</label></td>  
<td>&nbsp;</td>  
<td><input type="text" placeholder="Enter Username"  
name="username" id="username"></td>  
</tr>  
<tr></tr>  
<tr></tr>
```

```

<tr>
<td><label for="text">EMAIL ID</label></td>
<td>&nbsp;</td>
<td><input type="text" placeholder="Enter email id"
name="email_id" id="email_id"></td>
</tr>
<tr></tr>
<tr></tr>
<tr>
<td><label for="text">PHONE NUMBER</label></td>
<td>&nbsp;</td>
<td><input type="text" placeholder="Enter phone number"
name="phone_no" id="phone_no"></td>
</tr>
<tr></tr>
<tr></tr>
<tr>
<td><label for="text">PASSWORD</label></td>
<td>&nbsp;</td>
<td><input type="text" placeholder="Enter password"
name="password" id="password"></td>
</tr>

<tr></tr>
<tr></tr>
</table>
<br>
<center><button onclick="asd()" type="submit">Submit</button>
</center>
</form>
</center>
</body>
<script>
function asd() {
var username1 = document.getElementById("username");
var email_id = document.getElementById('email_id');
var phone_no = document.getElementById('phone_no');
var password = document.getElementById('password');
if (username1.value == "" || phone_no.value == "" ||
password.value == "") {
username.style.borderColor = "red";
}
else if (email_id.value == "") {
email_id.style.borderColor = "red";
}
else if (phone_no.value == "") {
phone_no.style.borderColor = "red";
}
else if (password.value == "") {
password.style.borderColor = "red";
}
}

}

```

```
</script>
```

```
</html>
```

## WELCOME.html

```
<html  
lang="en">
```

```
    <head>  
    <meta charset="UTF-8">  
    <meta http-equiv="X-UA-Compatible" content="IE=edge">  
    <meta name="viewport" content="width=device-width, initial-  
scale=1.0">  
    <link rel="stylesheet"  
href="https://cdnjs.cloudflare.com/ajax/libs/font-  
awesome/4.7.0/css/font-awesome.min.css">  
  
    <title>WELCOME</title>  
    </head>  
    <style>  
    h1 {  
font-family: 'Courier New', Courier, monospace;  
color: darkolivegreen;  
top: 10em;  
}  
  
    body {  
background-image: linear-gradient(92.7deg, rgb(59, 170, 201)  
8.5%, rgb(246, 244, 198) 90.2%);  
font-family: 'Times New Roman', Times, serif;  
}  
  
    a:hover {  
color: rgb(128, 105, 255);  
text-decoration: none;  
}  
  
    .font {  
color: rgb(141, 18, 100);  
font: bold;  
font-size: 27px;  
}
```

```
#top {
margin-top: 200px;
}
</style>
```

```
<body>
<center>
<H1 id="top">LOGIN SUCCESSFUL</H1>
<table>
<tr class="font">
<td>WELCOME</td>
<td>&nbsp;</td>
<td>{{username}}</td>
</tr>
<!-- <tr class="font">
<td>EMAIL_ID</td>
<td>&nbsp;</td>
<td>{{email_id}}</td>
</tr>
<tr class="font">
<td>PHONE NO</td>
<td>&nbsp;</td>
<td>{{phone_no}}</td> -->
<!-- </tr> -->
</table>
<table>
<tr>
<h1>CONNECT with python to DB2</h1>
</tr>
<tr>
<td>
<label"><a href="https://in.linkedin.com/company/ibm"><i
class="fa fa-linkedin-square"
style="font-size:36px"></i></a></label>
</td>
</tr>
<tr>
<td><a href="https://www.instagram.com/ibm/?hl=en"><i
class="fa fa-instagram"
style="font-size:36px"></i></a></td>
</tr>
<tr>
<td><a href="https://www.facebook.com/IBM/"><i class="fa fa-
facebook" style="font-size:36px"></i></a>
</td>
</tr>
<tr>
<td><a href="https://twitter.com/ibm?lang=en"><i class="fa fa-
twitter" style="font-size:36px"></i></a>
</td>
</tr>
```

```
</table>

</table>
</center>

</body>

</html>
```

## **Create IBM DB2 And Connect With Python**

```
<html lang="en">

<head>
<meta charset="UTF-8">
<meta http-equiv="X-UA-Compatible" content="IE=edge">
<meta name="viewport" content="width=device-width, initial-
scale=1.0">
<title>MEDIHELP</title>
</head>
<style>
body {
background-image: linear-gradient(135deg, #9796f0 10%, #FBC7D4 100%);
color: darkblue;
}

.container1 {
height: 50px;
width: 1449px;
background-image: linear-gradient(135deg, #9796f0 10%, #FBC7D4 100%);
}

h1 {
margin-top: 10px;
margin-left: 20px;
margin-right: 23px;
}

.container2:hover {
background-color: yellowgreen;
}

a {
text-decoration: ;
color: #0f0e0e;
}

a:hover {
color: bluewhite;
}

button:hover {
```



```

background-color: white;
border-color: cadetblue;
}
</style>

<body>
<center>
<h1 style="padding-top:50px">MEDICARE</h1>

<br>
<br>
<div class="container1">
<div class="container2" style="float: left">
<button style="height:50px;">
<a href="https://www.medicare.gov/account/login">
<H1>Login</H1>
</a>
</button>
</div>
<div class="container2" style="float: left">
<button style="height:50px;">
<a href="https://www.medicare.gov/account/login ">
<H1>Insurance</H1>
</a>
</button>
</div>
<div class="container2" style="float: left">
<button style="height:50px;">
<a href="https://www.medicare.gov/plan-compare">
<H1>Find Plans Now</H1>
</a>
</button>
</div>
<div class="container2" style="float: left">
<button style="height:50px;">
<a href="https://www.medicare.gov/care-compare">
<H1>Find Providers Near Me</H1>
</a>
</button>
</div>
<div class="container2" style="float: left">
<button style="height:50px;">
<a href="https://www.medicare.gov/talk-to-someone">
<H1>Get Help</H1>
</a>

</button>
</div>
<div class="container2" style="float: left">
<button style="height:50px;">
<a href="https://www.medicare.gov/sitemap">

```

```
<H1>Site Map</H1>
</a>
```

```
</button>
</div>
```

```
</div>
<br>
<br>
```

```

</center>
```

```
</body>
```

```
</html>
```

```
<script>
window.watsonAssistantChatOptions = {
  integrationID: "d63547f8-f695-4dc1-9d49-1427ee71a40c", // The ID of
  this integration.
  region: "au-syd", // The region your integration is hosted in.
  serviceInstanceID: "37373119-945f-46a0-928a-ced41dc40f36", // The ID
  of your service instance.
  onLoad: function (instance) { instance.render(); }
};
setTimeout(function () {
  const t = document.createElement('script');
  t.src = "https://web-
  chat.global.assistant.watson.appdomain.cloud/versions/" +
  (window.watsonAssistantChatOptions.clientVersion || 'latest') +
  "/WatsonAssistantChatEntry.js";
  document.head.appendChild(t);
});
</script>
```

## CREATE UI TO INTERACT WITH APPLICATION

```
<html
lang="en">

  <head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-
    scale=1.0">
    <title>MEDIHELP</title>
  </head>
  <style>
    body {
```

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</div>
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</div>
</div>
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  The ID of your service instance.  
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  document.head.appendChild(t);  
});  
</script>
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**Source Code Github:**

**<https://github.com/IBM-EPBL/IBM-Project-33242-1660216841>**