Plasma donor application

IBM-Project-30009-1660138157

Plasma donor application

NALAIYA THIRAN PROJECT BASED LEARNING ON PROFESSIONAL READLINESS FOR INNOVATION, EMPLOYNMENT AND ENTERPRENEURSHIP

A PROJECT REPORT

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1.INTRODUCTION

1.1 Project Overview

Category: Applied cloud computing

Team ID : PNT2022TM34873

Skills Required:

IBM Cloud, HTML, Javascript, IBM Cloud Object Storage, Python-

Flask, Kubernetes, Docker, IBM DB2, IBM Container Registry

Project Description:

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 to find the nearest available potential plasma donor and to maintain optimal level of blood bank reserve which would take the donor details, store them and inform them upon a request.

1.2 Purpose

Blood donation refers to a practice where people donate their blood to people. So it helps them with their health problems. Blood is one of the most essential fluids of our body that helps in the smooth functioning of our body. If the body looses blood in excessive amounts, people to get deadly diseases and even die. Thus, we see how blood donation is literally life-saving which helps people. It is also a sign of humanity that unites people irrespective of caste, creed, religion and more.

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 to find the nearest available potential plasma donor and to maintain optimal level of blood bank reserve which would take the donor details, store them and inform them upon a request.

2.LITERATURE SURVEY

2.1 Existing problem

Rehab S. Al[1]:

. In this paper, we illustrate the problem of the blood bags shortage which is represented in the uncontrolled blood banks and parallel markets, lack of awareness and confidence, disappearance of the rare blood groups, and the difficulty in finding a specific blood group. Hence, we proposed the Blood Bag web-based application that is connected to a centralized database to gather and organize the data from all blood banks and blood donation campaigns. The proposed application organizes and controls the whole critical processes related to blood donation, testing and storage of blood bags, and delivering it to the patient

Muhammad Fahim[2]:

. We developed android based blood donation application as mHealth solutions to establish a connection between the requester and donor at anytime and anywhere. The objective of this application is to provide the information about the requested blood and number of available donors around those localities. It assists the requester to broadcast the message across the maintained volunteer blood donor network by our application and update the requester at the same time who is willing to donate the requested blood. To evaluate our application, we created requester-donor profiles and analyzed that it will help to improve the timely access of the information and rapid response in emergency situation

Shreyas Anil Chaudhari[3]:

The main aim of creating cloud-based blood bank system is to make the blood available on time to the people, even in emergency situations. With the help of this project, the user can be able to view information about every entity related to blood bank i.e. hospitals, donors, a location of another blood bank etc. The security factor is maintained properly.

S.Hinrichs[4]:

The task involved collecting basic information about the electronic and electrical equipment. The data was collected through observations, interviews, and meetings with local staff. Although no financial or statistical figures were obtained, the study served to further confirm issues of management that are crucial to equipment use, and provided insights into cultural and social issues beyond management.

Diana Hawashin[5]:

In this paper, we propose a private Ethereum blockchain-based solution to enable organ donation and transplantation management in a manner that is fully decentralized, secure, traceable, auditable, private, and trustworthy. We develop smart contracts and present six algorithms along with their implementation, testing, and validation details. We evaluate the performance of the proposed solution by performing privacy, security, and confidentiality analyses as well as comparing our solution with the existing solutions. We make the smart contract code publicly available on Github.

Ahmed AL-Kalbani[6]:

This paper discussed the possibilities of implementation a full network for Oman hospital and mobile application that, can be used as a joint washer between the hospital and donor. This application will be uploaded in google play store and it can be downloaded by anyone and there is website also for whom using computer. It will work as a coordinator between the central blood bank in Muscat (Basher) and donors in all over the country.

2.2 References

[1]. Rehab S. Ali;Tamer F. Hafez;Ali Badawey Ali;Nadia Abd-Alsabour 2017 International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET)

[2]. Muhammad Fahim;Halil Ibrahim Cebe;Jawad Rasheed;Farzad Kiani 2016 Sixth International Conference on Digital Information and Communication Technology and its Applications (DICTAP)

[3]. Shreyas Anil Chaudhari;Shrutika Subhash Walekar;Khushboo Ashok Ruparel;Vrushali Milind Pandagale 2018 International Conference on Smart City and Emerging Technology (ICSCET)

[4]. S. Hinrichs;P. Colquhoun 2008 5th IET Seminar on Appropriate Healthcare Technologies for Developing Countrie.

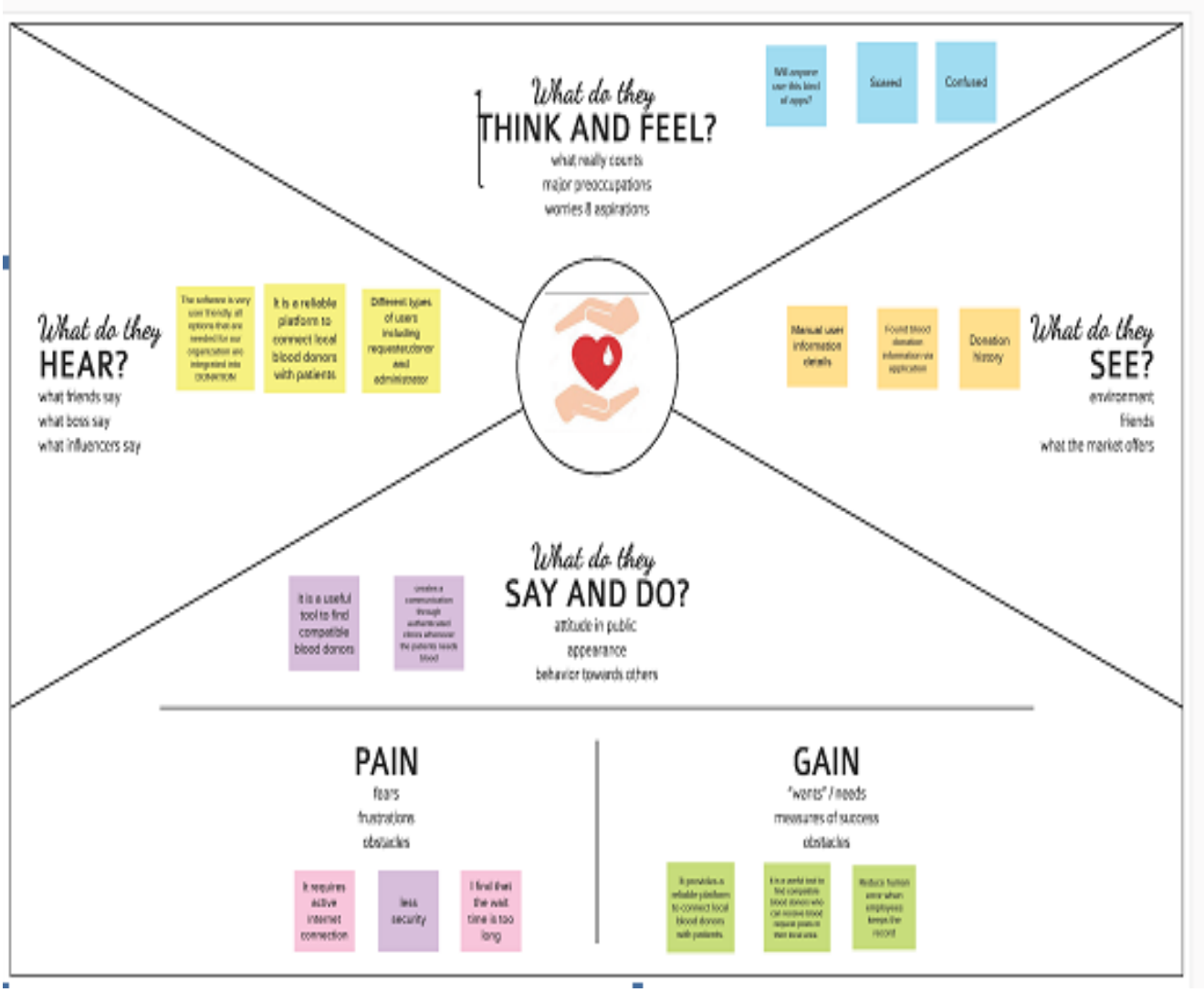
[5]. Ahmed AL-Kalbani;Syed Imran Ali Kazmi;Jitendra Pandey 2018 7th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO).

2.3 Problem Statement Definition

To find the nearest available potential plasma donor and to maintain optimal level of blood bank reserves and a connecting platform for blood donors and blood banks.

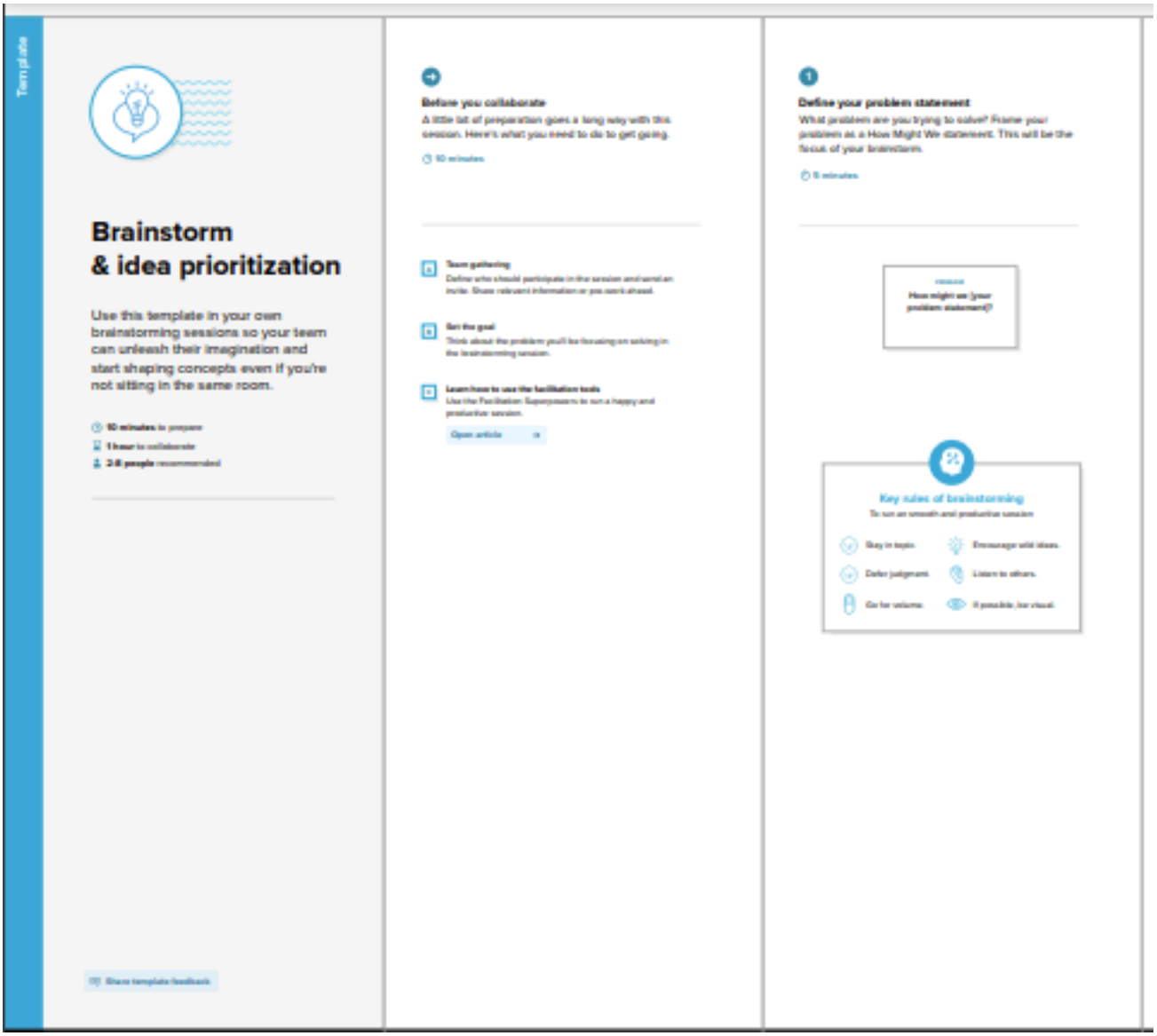
3.IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

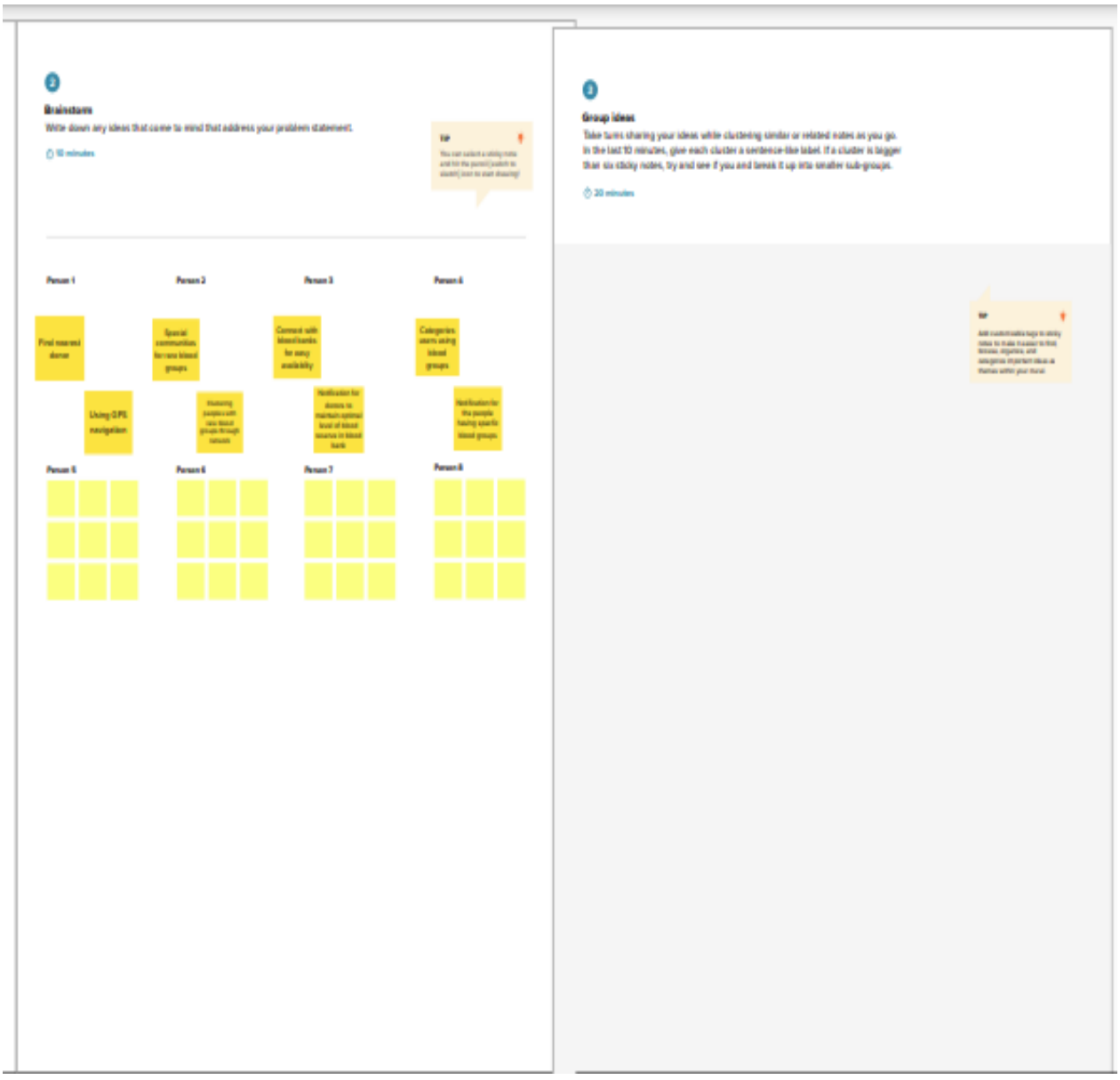


3.2 Ideation & Brainstorming

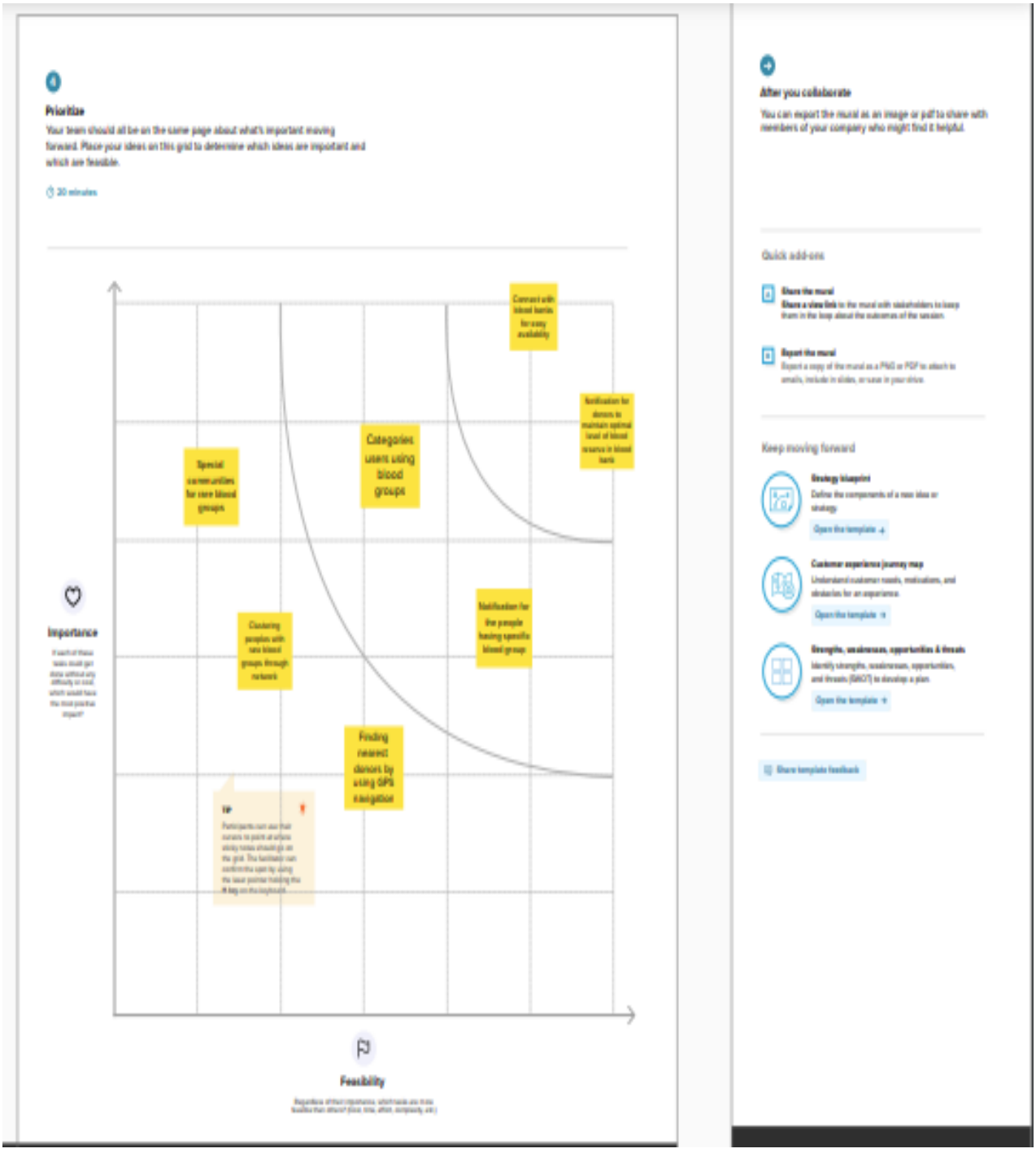
Step-1: Team Gathering, Collaboration and Select the Problem Statement



Step-2 : Brainstorm,Idea Listing and Grouping



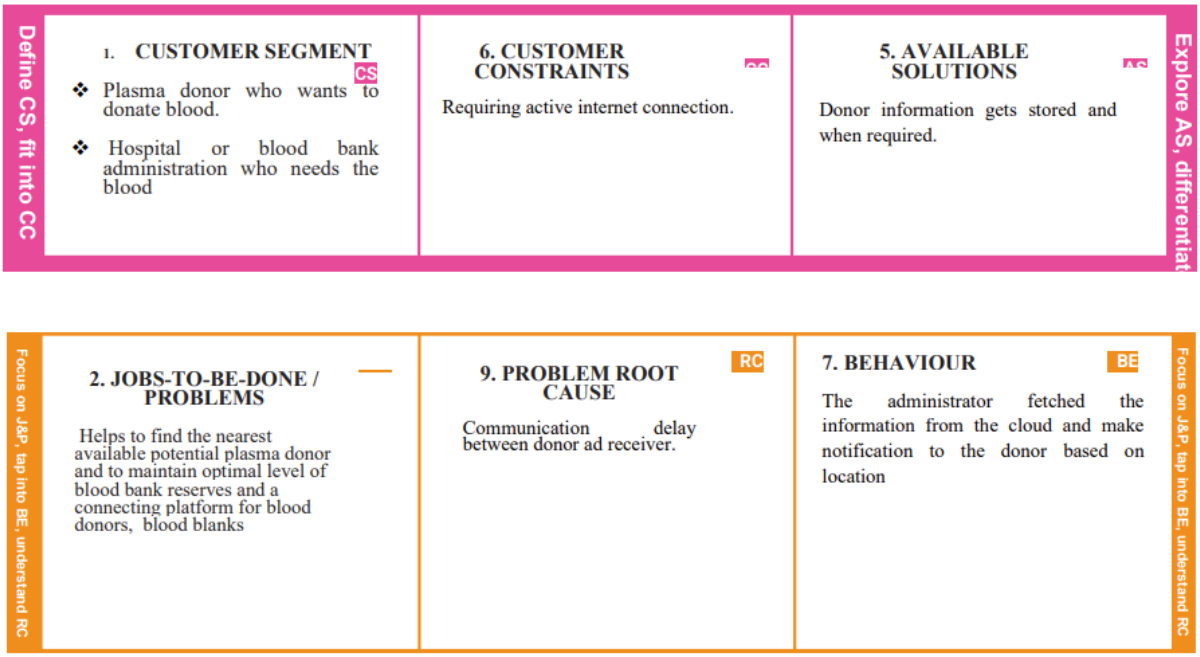
Step-3: Idea Prioritization



3.3 Proposed Solution

S.No	Parameter	Description
1.	Problem Statement (Problem to be solved)	To find the nearest available potential plasma donor and to maintain optimal level of blood bank reserves and a connecting platform for blood donors and blood banks.
2.	Idea / Solution description	The proposed system implements a cloud based web application as a solution to this problem. The information of the donors fetched using registration form filling structure. When the administrator needs blood donor he fetched the information from the cloud and make request to the donor based on the location. If donor accept his request he will sent the acknowledgment to the administrator.
3.	Novelty / Uniqueness	It provides a reliable platform to connect local blood donors with patients and hence reduce human error when employees keeps the record.
4.	Social Impact / Customer Satisfaction	The software is very user friendly. Different types of users including requester, donor and administrator.
5.	Business Model (Revenue Model)	This application can be linked with blood bank and blood donation camps everywhere.
6.	Scalability of the Solution	As this is a web application and uses cloud storage, any further enhancements in technology can be incorporated within this application.

3.4 Problem Solution fit



4.REQUIREMENT ANALYSIS

4.1 Functional requirement

Functional Requirements:

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 phone number Registration through Gmail
FR-2	User Confirmation	Confirmation via acknowledgement
FR-3	Username Generation	Every user has a private account
FR-4	Administrator request	Administrator making request to the donor for plasma
FR-5	Sending acknowledgement	The request is accepted by donor then the acknowledgement is send to the administrator
FR-6	Plasma donation	The receiver receive the plasma from the donor

4.2.Non-Functional Requirements

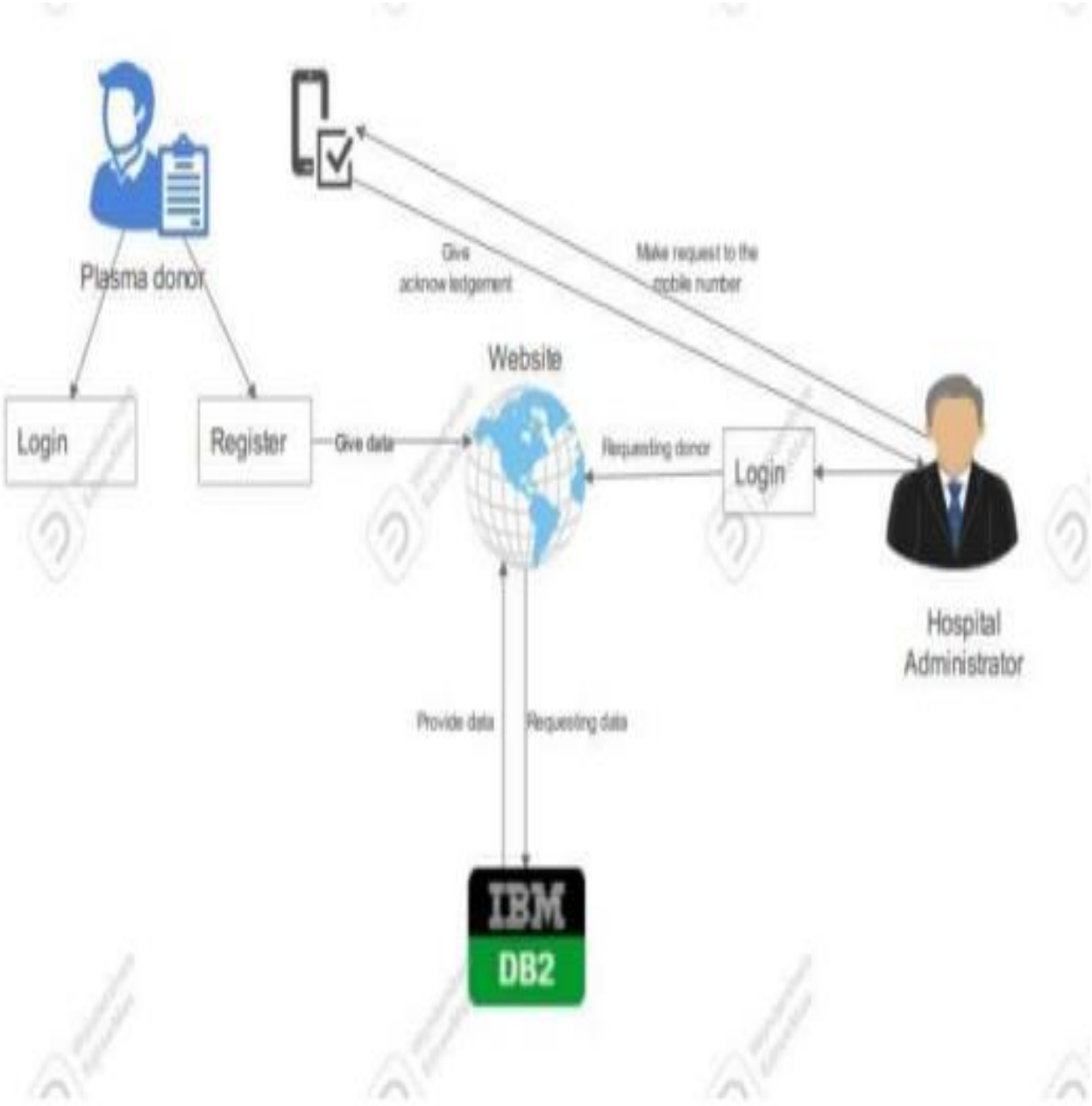
Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Different types of users including requester, donor and administrator
NFR-2	**Security**	Less security
NFR-3	**Reliability**	This software is very user friendly all options that are needed for our organization are integrated into the donation.
NFR-4	**Performance**	Additional facilities added
NFR-5	**Availability**	Available to the registered candidates
NFR-6	**Scalability**	Improved scalability

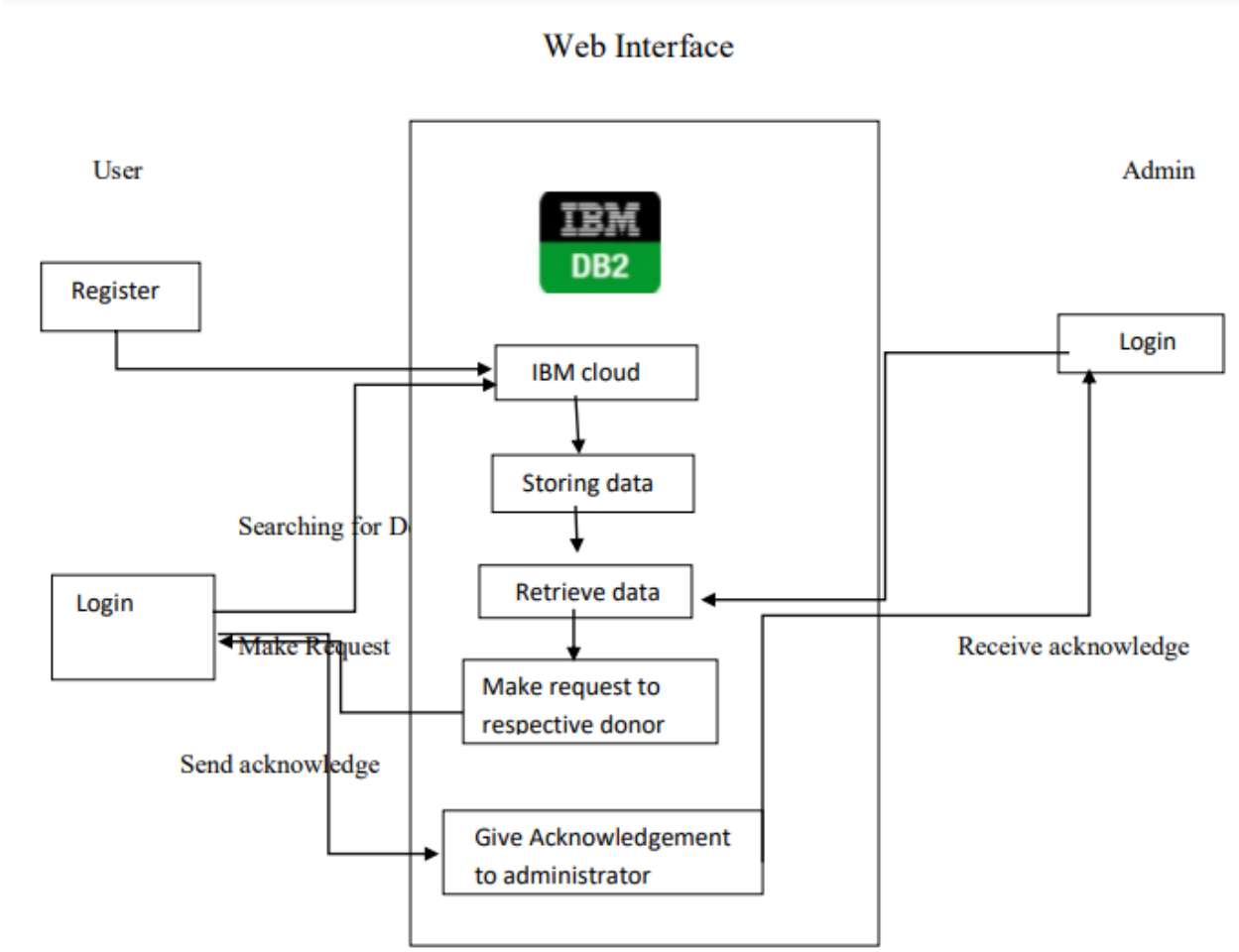
5.PROJECT DESIGN

5.1 Data Flow Diagrams

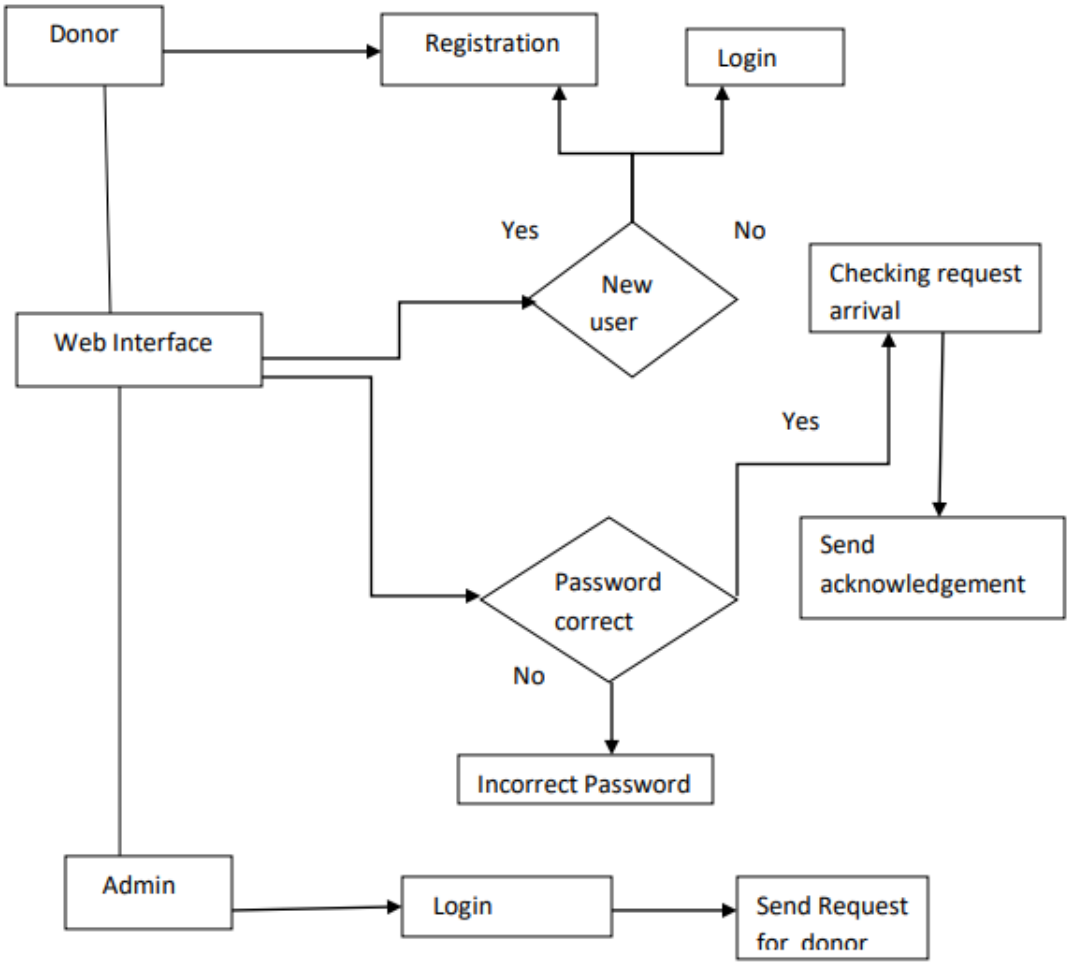


5.2 Solution & Technical Architecture

Technical Architecture



Solution Architecture



5.3 User Stories

User Stories

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Donor (web 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
Donor (web user)	Email and phone number confirmation	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
Donor (web user)	Login	USN-3	As a user, I can register for the application through email id	I can register & access the dashboard with Email Login	Low	Sprint-1
Donor (web user)	Details	USN-4	As a user, I can register for the application through Gmail	I can submit my blood group and location	Medium	Sprint-2
Administrator (web user)	Login	USN-5	As a user, I can log into the application by entering email & password	I can access by username and password	High	Sprint-2
Administrator	IBM Cloud database	USN-6	As a administrator I can access donor information	I can store data in cloud	High	Sprint-3
Administrator	Details	USN-7	As a admin I can request for the particular donor	I can request for plasma donor for particular blood group and priority location	High	Sprint-3
Donor	Details	USN-8	As a user, I can see the request from the administrator	I can view the request for plasma	High	Sprint-4
Donor	Phone number	USN-9	As a donor, I can send acknowledgement to the admin	I can send acknowledgement to admin	High	Sprint-4

6.PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

Sprint	Functional Requirement(Epic)	User Story Number	User Story / Task	Story Poins	Priority	Team Members
Sprint-1	User Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	Suvetha A Thirksha Rajma B.V
Sprint-1	Email and Phone number Confirmation	USN-2	As a user, I will receive confirmation email once I have registered for the application	2	High	Varsha S Vinisha C Suvetha A
Sprint-2	Donor login	USN-3	As a user, I can register for the application through email id	2	High	Thirksha Rajma B.V Vinisha C
Sprint-2	Donor details	USN-4	As a user, I can register for the application through Gmail	2	High	Suvetha A Varsha S
Sprint-2	Administrator login	USN-5	As a user, I can log into the application by entering email & password	2	High	Thirksha Rajma B.V Suvetha A
Sprint-3	IBM Cloud database	USN-6	As a administrator, I can access donor information	2	High	Varsha S Vinisha C Thirksha Rajma B.V Suvetha A
Sprint-4	Administrator details	USN-7	As a administrator, I can request for the particular donor	2	High	Varsha S Vinisha C
Sprint-4	Donor details	USN-8	As a user, I can see the request from the administrator	2	High	Thirksha Rajma B.V Suvetha A
Sprint-4	Phone number	USN-9	As a donor I can send acknowledgement to the admin	2	High	Varsha S Vinisha C

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	29 Oct 2022	2 Nov 2022	20	3 Nov 2022
Sprint-2	20	6 Days	3 Nov 2022	6 Nov 2022	20	7 Nov 2022
Sprint-3	20	6 Days	7 Nov 2022	12 Nov 2022	20	13 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 20222	20	19 Nov 2022

Velocity:

Imagine we have a 6-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)

$$AV = \frac{\text{Sprint duration}}{\text{Velocity}} = \frac{20}{6} = 3.3$$

6.2 Sprint Delivery Schedule

Sprint	Sprint Topic	Start Date	Expected Delivery
Sprint 1	User Registration Email and phone number confirmation	29 Oct 2022	3 Nov 2022
Sprint 2	Donor login Donor details Administrator login	3 Nov 2022	7 Nov 2022
Sprint 3	IBM Cloud database	7 Nov 2022	13 Nov 2022
Sprint 4	Administrator details Donor details Phone number	14 Nov 2022	19 Nov 2022

6.3 Reports from JIRA