PLASMA DONAR APPLICATION

19I039 - PROFESSIONAL READINESS FOR INNOVATION, EMPLOYABILITY AND ENTREPRENEURSHIP

REPORT

Submitted by

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CHAPTER-1
INDRODUCTION

With rapid increase in the usage of social networks sites across the world, there is also a steady increase in plasma donation requests as being noticed in the number of posts on these sites such as Face book and twitter seeking plasma donors.

Finding plasma donor is a challenging issue in almost every country. There are some plasma donor finder applications in the market such as Blood app by Red Cross and Blood Donor Finder application by Neologix.

1.1 PROJECT OVERVIEW

Several software technologies including languages and framework are used to develop our plasma-donor web application known as "**PLASMA DONOR APPLICATION**".

These technologies includes HTML, CSS along with PYTHON and IBM CLOUD for database are used. The python is computer programming language often used to create websites and software, automate task and conduct the data analysis.

Python is a general-purpose language, meaning it can be used to create a variety of different programs and isn't specialized for any specific problem.

1.2 PURPOSE

The main goal of our project is to design a user-friendly web application that is like a scientific vehicle from which we can help reduce mortality or help those affected by COVID19 by donating plasma from patients who have recovered without approved antiretroviral therapy planning for a deadly COVID19 infection.

Your application helps patients who need plasma-derived biotherapies to improve or save their lives. Those in need are suffering from life-threatening conditions such as hemophilia, immune deficiencies, and other blood disorders.
Plasma is the essential ingredient in many medications and treatments.

CHAPTER -2

LITERATURE SURVEY

2.1 EXISTING PROBLEM

There are a quite good number of software packages that exist for PLASMA DONOR APPLICATION system. But when I visited most plasma donor center system portal. I found that existing system is limited only to those particular plasma center.

Problem Found In Existing System

- At the present there is no software to keep any records in plasma center.
- It becomes difficult to provide any record immediately at times of emergency.
- Required more human efforts in maintaining the branch related information .
- Manually to keep the accounts is also tedious & risky job & to maintain those accounts in ledgers for a long period is also very difficult.
- Difficult to manage and maintain the files.
- Chance of damage of files, if the data is stored in the files for duration of time.
- Time consuming is retrieving, storing and updating the data.
- It is difficult to keep track the record about the donor & receiver he has donated or received the plasma at the last time.

2.2 REFERENCES

CASE STUDY - I

TITLE: Instant Plasma donar Recipient connector web application

AUTHOR: Kalpana Devi Guntoju, Tejaswini Jalli, Sreeja Uppala, Sanjay Mallisetti

YEAR: 2022

ABSTRACT:

The world is suffering from the COVID 19 crisis and no vaccine has been found yet, but there is another scientific way in which we can help reduce mortality or help people affected by COVID19 by donating plasma from recovered patients. In the absence of an approved antiviral treatment plan for a fatal COVID19 infection, plasma therapy is an experimental approach to treat COVID19-positive patients and help them faster recovery. Therapy is considered competent. In the recommendation system, the donor who wants to donate plasma can donate by uploading their COVID19 certificate and the blood bank can see the donors who have uploaded the certificate and they can make a request to the donor and the hospital can register/login and search for the necessary things. plasma from a blood bank and they can request a blood bank and obtain plasma from the blood bank.

CASE STUDY - II

TITLE: Determinants of plasma donation: A review of the literature

YEAR: 2017

ABSTRACT:

The major contribution of Human Sciences in the understanding of the whole blood donation behavior has been through the study of individuals' motivations and deterrents to donate. However, if whole blood donation has been very widely studied in the last sixty years, we still know very little about plasma donation in voluntary non-

remunerated environments. Yet, the need for plasma- derived products has been strongly increasing for some years, and blood collection agencies have to adapt if they want to meet this demand. This article aims to review the main motivations and deterrents to whole blood donation, and to compare them with those that we already know concerning plasma donation. Current evidence shows similarities between both behaviors, but also differences that indicate a need for further research regarding plasma donation.

CASE STUDY – III

TITLE: Developing a plasma donor application using Function-as-a-service inAWS

AUTHOR: Aishwarya R Gowri

YEAR: 2020

ABSTRACT:

A plasma is a liquid portion of the blood, over 55% of human blood is plasma. Plasma is used to treat various infectious diseases and it is one of the oldest methods known as plasma therapy. Plasma therapy is a process where blood is donated by recovered patients in order to establish antibodies that fights the infection. In this project plasma donor application is being developed by using AWS services. The services used are AWS Lambda, API gateway, DynamoDB, AWS Elastic Compute Cloud with the help of these AWS services, it eliminates the need of configuring the servers and reduces the infrastructural costs associated with it and helps to achieve serverless computing. For instance, during COVID 19 crisis the requirement for plasma increased drastically as there were no vaccination found in order to treat the infected patients, with plasma therapy the recovery rates where high but the donor count was very low and in such situations it was very important to get the information about the plasma donors. Saving the donor information and notifying about the current donors would be a helping hand as it can save time and help the users to track down the necessary information about the donors.

2.3 PROBLEM SOLUTION DEFINITION

PROBLEM STATEMENT

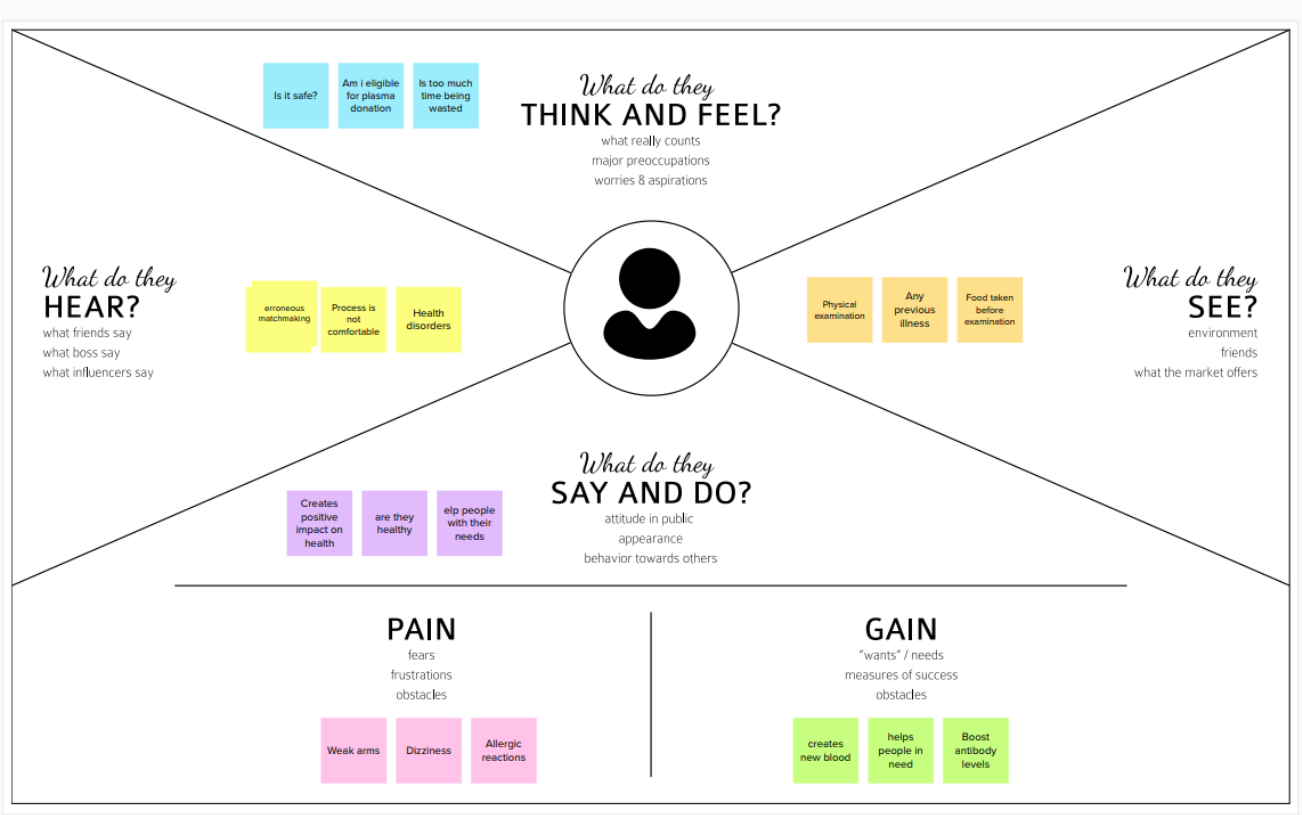
QUESTION	DESCRIPTION
Who does the problem affect	People who are in need of plasma donors
What is the issue	Unable to find plasma donors during need for different blood groups
When does the issue occur	When a person lacks plasma content in blood
Where is the issue occurring	When a person is affected by illness and plasma count decreases in their body
Why it is important that we fix the problem	Important as it will be easily for people to find their donor in easy and quick manner

In this project we propose an efficient way to identify plasma donors.This app provides a list of donors in your city/area. In our application we ask our donor to enter their 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 donors nearby by using GPS. Once the app user enters the blood group which he/she needs 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 the queue. Once the donor donates the blood it will automatically remove the donor detail for next three months.

CHAPTER 3

IDEATION AND PROPOSED SOLUTION

3.1 EMPATHY MAP CANVAS



3.2 IDEATION AND BRAINSTORMING

Step-1: Brainstorm, Idea Listing and Grouping


2
Brainstorm
Write down any ideas that come to mind that address your problem statement.
10 minutes
TIP
LAKSHMIJAM
ADHILA
KRITI
VIJAY
Person 5
Person 6
Person 7
Person 8

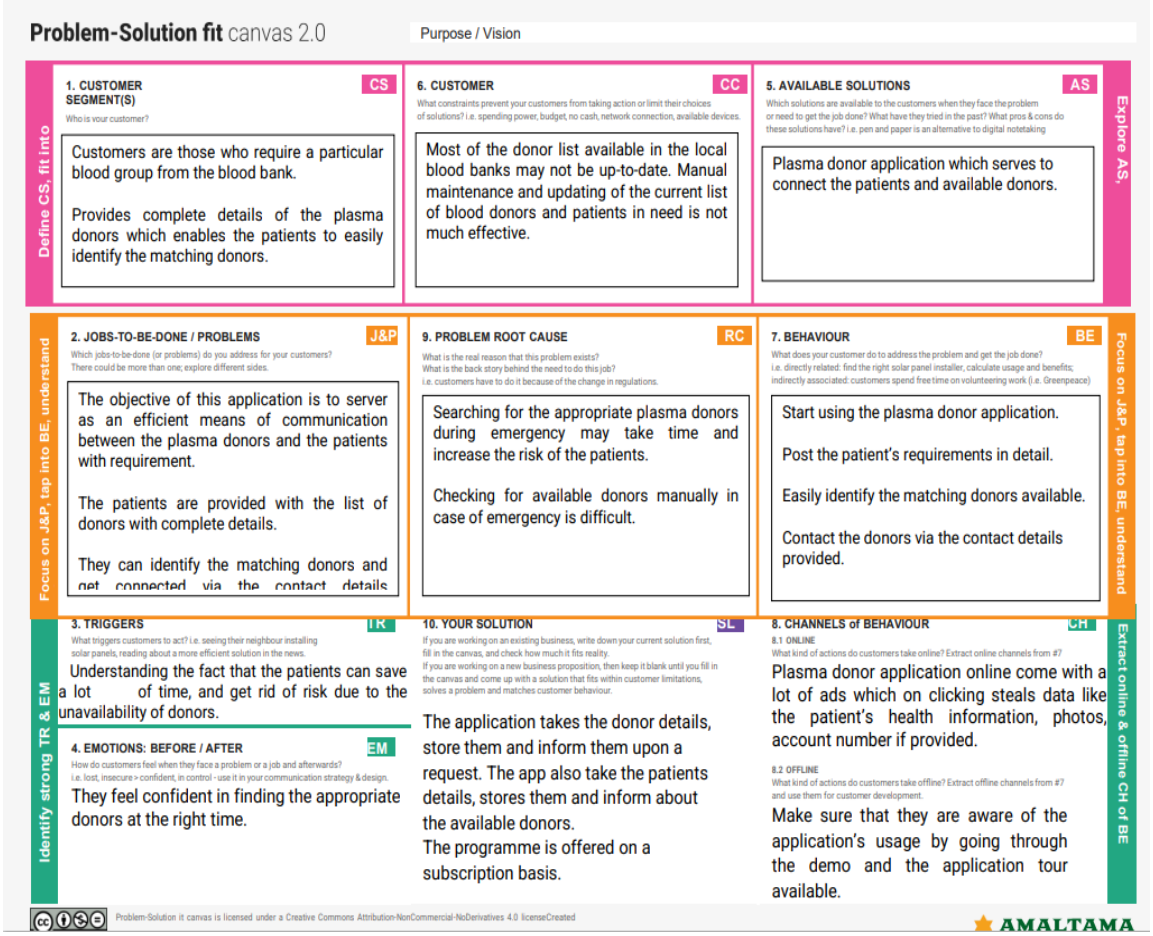
Step-2: Idea Prioritization

3.3 PROPOSED SOLUTION

S.No	Parameter	Description
1	Problem Statement (Problem to be solved)	During the COVID 19 crisis, the requirement of plasma became a high priority and the donor count has become low.This getting donor during need was quite difficult.
2	Idea / Solution description	An application is to be built which would take the donor details, store them and inform them upon a request.Thus anyone who needs plasma can find their donor using the app.
3	Novelty / Uniqueness	Group donors will get notified about it.
4	Social Impact / Customer Satisfaction	People can use it identify plasma donors when they are in need thus donors help to save life
5	Business Model (Revenue Model)	We can offer the programme on a subscription basis.

6	Scalability of the Solution	Future customers of IBM Cloud will automatically receive storage.

4.**PROBLEM FIT**



CHAPTER-4

REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENT

In software engineering and systems engineering, a functional requirement defines a function of a system or its components.

Access Website:

Software operator should be capable to access web-application through either an application browser or similar service on the PC. There should not be any limitation to access web-application.

Software operator Registration:

Given that software operator has accessed web-application, then the software operator should be able to register through the web-application. The donor software operator must provide first name, gender, plasma group, location, contact, software operator name and password.

New Releases:

When a new/update/revise version of the web-application is released, the appearance will be automatically appears when the software operator access the web-application.

Software operator log-in:

Given that the software operator has registered, then the software Operator should be able to login to the web-application. The login information will be stored on the database for future use.

Search result in a list view:

Search result can be viewed in a list. Each element in the list represents a specific donor. Each element should include first name, gender, plasma group, location, contact according to the software operator position.

Request plasma:

Software operator (Clinic) should be able to request for plasma at emergency situation, software operator need to define plasma group, location, required date, contact. The plasma request requested will be sent to plasma bank and then to the Inventory to check the availability. If available, the requested plasma will be sent to the requested donor (Clinic).

View Request:

The plasma Bank should be able to view received request and then respond to them and can search requests by selecting two options select plasma group and provision.

Search plasma Bank Stock:

Receiving the blood or plasma request from Clinic, the blood or plasma stock in the Blood or plasma Bank Inventory will be searched to match the requested blood or plasma request.

View Blood or plasma request Details:

The Clinic, Blood or plasma Bank should be able to view the Blood or plasma requestId, time of the blood or plasma request placed, name of the clinic, location and the address of the clinic. In addition to this an additional feature of tracking the distribution person which includes his location and the checkpoints passed.

View Distribution Status:

The Clinic, Blood or plasma Bank should be able to view the status of the distribution time. If the distribution seems to be delayed then the clinic manager must to able to call the distribution person to get the update/revise on the distribution.

4.2 NON-FUNCTIONAL REQUIREMENTS

In systems engineering and requirements engineering, a non- functional requirement is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specifies behaviors.

Maintainability:

The plasma donar application System have must have high level of Maintainability.

Serviceability

If issue arises in the plasma donar application System, then then project must be programmed in such a way that developer can service it again.

Environmental

The plasma donar application System must be working in latest operating system environments like windows 7, windows 8, windows 10 and on Linux.

Data Integrity

All the data in the plasma donar application System must be accurate and

reliable. **Usability**

The plasma donar application System must have a good looing user friendly interface.

Recoverability

The plasma donar application System must have a proper data backup mechanism.

Interoperability

The plasma donar application System must work with or use the parts or equipment of another system.

Capacity

The plasma donar application System must fulfill on storage requirements, today and in the future. The Blood bank Management System must be scale up for increasing volume demands.

Performance

The plasma donar application System must perform well in different scenarios.

Security

The plasma donar application System must be secured with proper user name and passwords.

Regulatory

The plasma donar application System must obey all the governmental requirements and constraints.

Availability

The plasma donar application System must be available 24 hours a day with no bandwidth issues.

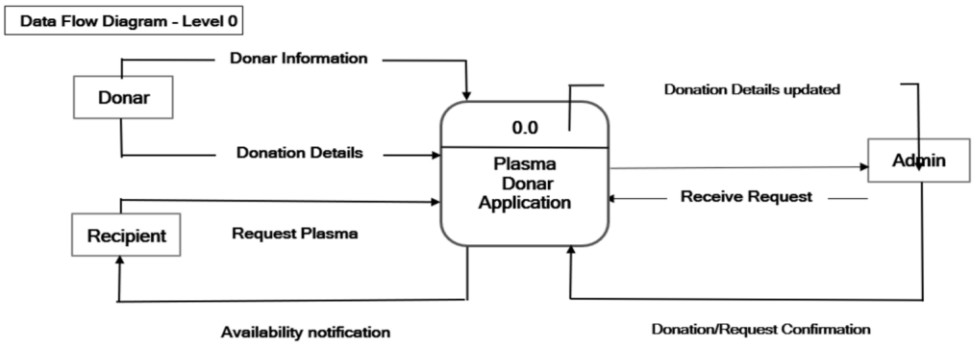
Manageability

The plasma donar application System must Alerts when the system suffers from a recoverable interruption.

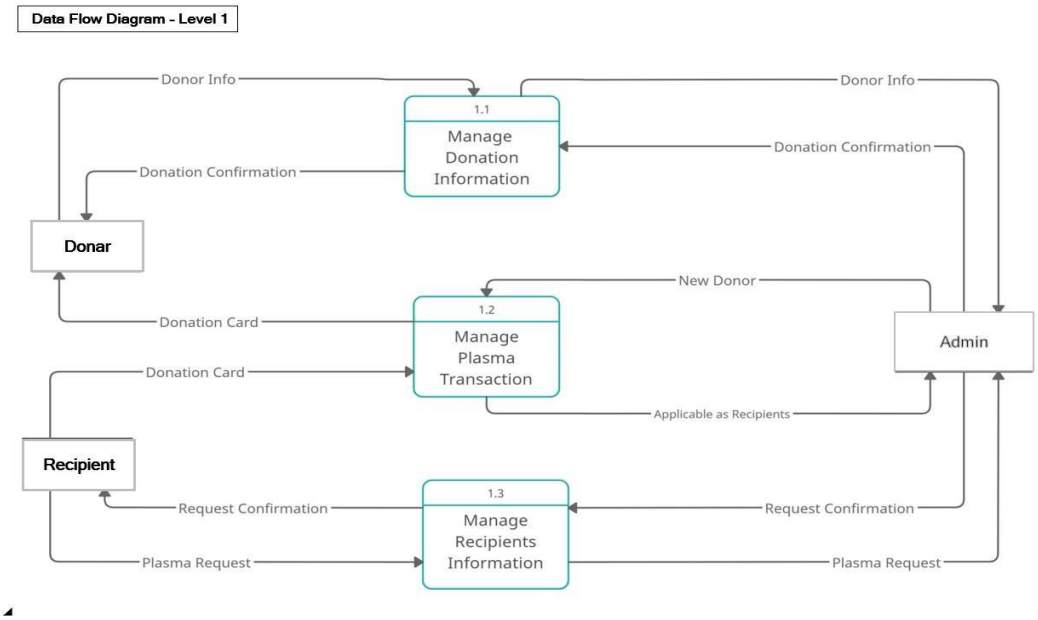
CHAPTER-5

PROJECT DESIGN

5.1 DATA FLOW DIAGRAM



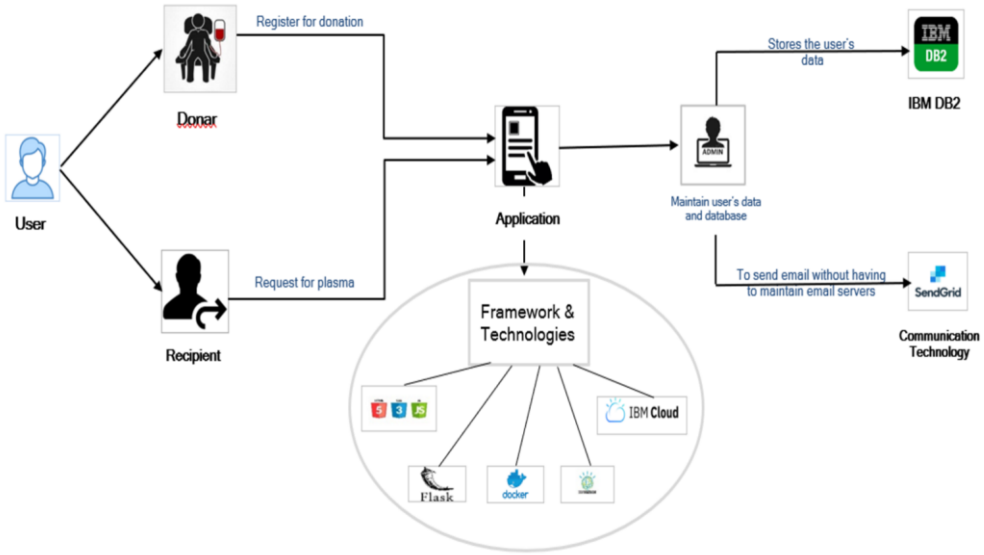
Data Flow Diagram – Level 0



Data Flow Diagram – Level 1

5.2 SOLUTION AND TECHNOLOGY ARCHITECTURE

Technical Architecture:



5.3 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, phone number, password.	I can access my account / profile.	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive verification email for confirmation.	High	Sprint-1
		USN-3	As a user, I can register for the application through social media site/account.	I can register & access my account/profile with social media account.	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail, Yahoo mail, Outlook…	I can register the app with email account.	Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password.	I can register & access user profile/account with Gmail account.	High	Sprint-1
	Requesting/ recipient	USN-6	As a recipient, I can request the blood group for which I need plasma.	I can get plasma through Donation center while plasma is available.	High	Sprint-2
Customer (Web user)	Profile	USN-7	As a user, I can see registration page, login page and chat bot for which the user can access to donate and to request for the required blood group plasma.	I can login through email and social media account for registration.	Medium	Sprint-2
Customer Care Executive	Help desk /User support	USN-8	As a customer care executive, I can solve the queries of the users.	I can reply to their queries and solve their related problems.	High	Sprint-3
Administrator	Registration	USN-9	As an Administrator, I can view the database of the registered users.	I can check and verify the persons who are the registered their mail Id's and information's.	Medium	Sprint-4
	Dashboard	USN-10	As an Administrator, I can view how many members requested for what kind of blood group for plasma.	I can check the number of requirements and monitor the availability.	Low	Sprint-4
Chabot	User-Interface	USN-11	In addition to the customer care executive, I can solve all the queries of the donor as well as the recipient.	I can reply to all the Questions which are asked by the users that are related to the service we provided.	Medium	Sprint-4

CHAPTER-6

6.1 SPRINT PLANNING AND ESTIMATION

Project Tracker:

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 Nov2022
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

Velocity: Sprint – I to 4

Sprint duration = 6 days
Velocity of the team = 20 points

$$\text{average velocity (AV)} = \frac{\text{Velocity}}{\text{Sprint duration}}$$

$$AV = 20/6 = 3.34$$

Average Velocity = 3.34

6.2 SPRINT DELIVERY SCHEDULE

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Simulation creation	USN-1	Connect with python code	2	High	Laksmiraam A Aghila Kriti S Vijay G
Sprint-2	Software	USN-2	Creating an IBM Watson in Cloud platform	2	High	Laksmiraam A Aghila Kriti S Vijay G
Sprint-3	MIT App Inventor	USN-3	Develop an Plasma donor application	2	High	Laksmiraam A Aghila Kriti S Vijay G
Sprint-4	Dashboard and UI	USN-4	Design the Modules and test the app	2	High	Laksmiraam A Aghila Kriti S Vijay G

CHAPTER – 7

ADVANTAGES AND DISADVANTAGES

Advantages

- **Speed**: This website is fast and offers great accuracy as compared to manual registered keeping.
- **Maintenance**: Less maintenance is required
- **User Friendly**: It is very easy to use and understand. It is easily workable and accessible for everyone.
- **Fast Results**: It would help you to provide plasma donors easily depending upon the availability of it.

Disadvantages

- **Internet**: It would require an internet connection for the working of the website.
- **Auto-Verification**: It cannot automatically verify the genuine users.

CHAPTER-8

CONCLUSION

The efficient way of finding plasma donor for the infected people is implemented using the plasma donor website that is hosted on Aws platform. To ensure the smooth functioning of the website operations.

I have hosted the website in AWS platform to make sure the operations are running successfully AWS lambda function is used and to deploy the application AWS EC2 service is used.

CHAPTER-9

FURTURE SCOPE

Upgrading the UI that is more user-friendly which will help many users to access the website and also ensures that many plasma donors can be added into the community.

Using elastic load balancer, it helps to handle multiple requests at the same time which will maintain the uptime of the website with negligible downtime.