American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science &Technology (FST)

Summer 19_20

Section: A

Group No: 04

Plasma Tracker

A software Engineering project submitted By Shionty Ghosh Dola

The project will be Evaluated for the following Course Outcomes

CO3: Choose appropriate software engineering model in a software development environment		Total Marks
Project Background Analysis (problem, needs, goal, benefits, etc.)	[5Marks]	
Appropriate Process Model Selection and Argumentation with Evidence	[5Marks]	
Completeness, Spelling, Grammar and Organization of the Answer	[5Marks]	
CO4: Explain the roles and their responsibilities in the software project management activities		Total Marks
Content Knowledge (e.g. System Requirements, System Design)	[5Marks]	
Project Role identification and Responsibilities descriptions	[5Marks]	
Presentation Delivery and Defense	[5Marks]	

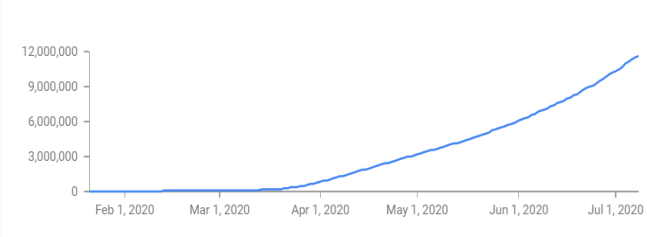
Text Format:

- Style: Times New Roman
- Size: 12
- Line spacing: 1

Exercise -1
Problem background

Introduction:

Corona Virus Pandemic (formality known as COVID-19 pandemic) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is now becoming a global threat for all across the world. This global threat was first allocated in Wuhan, China, on 11 Mach, 2019. World Health Organization declared this outbreak on 30 January and pandemic on 11 March As of 9 July 2020 because of more than 12 Million cases from 188 countries across the world, which was caused by this virus. The number of affected people and affected countries is still increasing.



The virus was confirmed to have spread to Bangladesh in March 2020. The first three known cases were reported on 8 March 2020 by the country's epidemiology institute, IEDCR.

The problem is so significant to consider because it can transmit from human to human by coughs and sneezes with a range of about 1.8 meters. The vaccine of this virus is still under development. However, people are taking Plasma treatment around the world, which shows a surprising result to cure the COVID affected peoples. Like other countries, Bangladesh is also exploring plasma treatment as a ray of hope.

- **Q1. Does the team demonstrate a thorough understanding of the need, problem, or opportunity, including research into the need, problem, or opportunity?**

Bangladesh is listed as a Covid-19 affected country in March 2020 with three known cases, and now the number is 172,134+, with 2,197+ deaths. The number is increasing dramatically; this virus can easily transmit from person to person, and the vaccine of this virus is still under development. So, people should have to be more aware of it. Bangladesh is a developing country with a rate of population and illiteracy that making the affected number increasing. The vaccine is still under development, the world health organizations claimed that plasma from those who got cured of Covid-19 could be used instead of the vaccine. Furthermore, it shows and magnificent result to cured the COVID affected people.

- **Q2. Does the project have a clear objective, including relevant benefits, an target market, or an audience of the product?**

Bangladesh is a leading 17th position country in the Covid-19 virus. Still, it is a vaccine under development. In Bangladesh's perception, it is the most relevant beneficial project. Cause in a country like Bangladesh, a massive number of cases is so far, and the ongoing treatment is plasma injecting people need plasma from those victims' safe patients. So tracking those people is challenging. A Plasma Tracker project will help people track down those who can give or available to donate plasma. Thus, it will save them time, and also, the seeker does not have to worry about the source and its security. Whenever people see that they do not find any difficulty

finding plasma, they will be going to pay their interest in it. By building an application to stored data of plasma information, location, information, and reviling it on play store, apple Store can help the project to reach out to the user or the seekers. The targeted audience for this project needs plasma in a well-organized secure source. Moreover, most of them in us using android mobile who already know how to use the application, so that case targeted people can easily use it; also, we can develop Bangla language that also helps who face some difficulty in English. We can also contact the Health ministry to inform about our project that how can or how much it beneficial in our country that they collaborate with us to build up this.

- **Q3. What are the solutions you are going to propose to deal with the problem? Why is this solution is particularly appropriate to solve the problem? Is the solution feasible to meet the business objective?**

Bangladesh is now listed as a COVID-19 affected country. The solutions will be like collecting plasma from the recovery patient and listed into a secure management system then provide it to the affected patient. Now telling elaborately, firstly, Wesaw that the Manuel collection of plasma samples is not significant because the affected patient does not know about the collector properly, and then sometimes it is too hard to maintain the list. So, we want to build a system that if a recovered patient donates plasma, then He can be registered into our system by nid or passport. Then we can list the plasma blood group, when he was recovered, how long he was suffering, he can donate plasma. The arrival of the Covid-19 vaccine is not so soon so. We need to build a system that can help the critically affected people. The business purpose is that when we collect the client's information, then we can use it in other government projects shortly for the betterment economy. The government can play in the field of unemployment challenges for the people who need a job. The government can do a project for the women empowerment. The list can also help the education sector; above all, we can use the health sector data.

- **Q4. Are the project's purpose and basic functionality easily understood?**

The project's purpose is primary, and functionality easily understandable. According to the present crisis, plasma therapy is an experimental treatment that doctors of Bangladesh use for people with severe coronavirus disease 2019 (COVID-19). The project's purpose will be to collect plasma from the recovery patient and listed into a secure management system then provide it to the affected patient. Gathering or tracking plasma can help people reach out for the demanded plasma to save a life. Whenever people see that basic functionality does not find any difficulty finding plasma, they will put their interest in it.In many cases, Covid-19 patients after recovery are donating plasma for free, while some of them are charging for it. A patient in Kurmitola General Hospital was administered with 400 ml plasma, donated by a person with Bangladesh Specialized Hospital in Shyamoli. In another case, a family collected a bag of blood from a donor for a patient receiving treatment at Anwar Khan Modern Hospital and had to pay for it. The family declined to disclose the amount of money. It costs Tk 30,000 to administer a bag of plasma at Bangladesh Specialized Hospital. They do it for both inpatients and outpatients. We can build an application that has stored data of plasma info and release it on the play store, Apple Store so that targeted people can easily download the free app and use it.

EXERCISE - 2: Requirement Analysis

Objective: Develop a Specification Document of the Proposed Solution
Tools/ Device: SRS Template
Procedure:
System Features:

Functional requirement

1.System login-
Functional requirement:
1.1-> The system will allow users to log in to the system with their valid user-Id or admin-ID and Password.
1.2-> If the system login successfully, then the home page of the account holder will be displayed, and the user can use all features of the homepage
1.3-> If the user-id or Password has been inserting wrong more than five times, the system sends a notification and a verification code randomly by mail to user to re-login into the system.
1.4-> If the login attempt number more than seven times, then the account will be blocked for 40 minutes, then user can again re-login into the system.
Priority level: High.
Precondition: The account holder must have valid user-id with valid information.
Crossover: 3.1.

2.Language-
Functional requirement:
2.1-> System will automatically prefer the English language to user.
2.2-> System allow to user to choose their preferred language.
2.3-> After choosing the language, user also can change it.
2.4-> Users do not need to setup every-time language; it will automatically save by system.
Priority level: Low.
Precondition: Users need to login to account first.
Crossover: N/A.

3.System Security-
Functional requirement:
3.1-> When the system will be found, anyone tries to log in unnecessarily many times, then the system will alert the user by sending a message or a mail to the user to confirm whether it is the account holder.
3.2-> Users only can know their location, information, and donor information (when user needs plasma). However, the system cannot allow to user to change any other users or donor information. The user only can change his/her information.
3.3-> Secure all user (seeker, donor, admin) information stored in the database. Moreover, only Admin can access the system Database. The database also records all of the plasma info that will collect.
3.4-> After every 60 minutes later, the system will automatically logout from the system.
3.5-> If the user forgets the Password, the user needs to re-enter his mail address or mobile number to send a password to the re-login account. After login user must need to set a new password.

3.6-> Admin can remove or ban any user from this system for its security policy or prevent new networks' threats if necessary.
3.7-> At a time, only one person will be able to log in one account.
Priority level: High.
Precondition: Need to create an account.
Crossover: 1.2, 1.3, 1.4,4.3,4.4,5.3,8.1,8.2,10.3,10.4.

4.Location-
Functional requirement:
4.1-> User will see a tab in the website can click it, and in-app there will see a location button to press and both will show a page of the location.
4.2-> Users can use filters to select their requirements and search from ticking requirement needs.
4.3-> Users can search with the name of the hospital, location, clinic, health center.
4. 4-> Users can go directly to the connected map from the location page by clicking a hospital tab.
Priority level: Medium.
Precondition: Users have to have a valid account.
Crossover: 5.1.

5.Tracking-
Functional requirement:
5.1-> User can Track the location of the distance, and If the network goes offline, it will be available the last location selected.
5.2-> User can define the minimum distance from his location and measure it by walking vehicle distance.
5.3-> Users can use voice recognition to select the palace, and the system can deliver some default place of close location.
5.4-> User can estimate the time from his/her distance by clicking Time duration.
Priority level: Medium.
Precondition: Location features have to be turned one while using these features.
Crossover: 1.2.

6.Search-
Functional requirement:
6.1-> User Can search for anything he wants from writing in search bar text; it is user-friendly.
6.2-> Users can see some filtering options from the search bar.
6.3-> Users can search by selecting some specific requirements.
6.4-> Users can see some recent results by the search tab.
Priority level: Medium.
Precondition: N/A.
Crossover: 11.3,11.4,11.5

7.Feedback-
Functional requirement:
7.1-> User can select a feedback tab in which a page with a comment box shows up.

7.2-> Users can select some issues that we will give, and there will be other options that the user can define.
7.3-> User can see some feedback of others their he/she can search for his problem.
7.4-> User can send Photos with his/her issue so that he/she can give his/her explanation as he/she wants.
7.5-> User can remove, edit, or update his feedback after submitting it by applying it to the developers.
Priority level: Medium.
Precondition: Users have to have a valid account.
Crossover: 6.5,12.1,.12.2,9.3.

8.Notification-
Functional requirement:
8.1-> This system only works if the user decides to use it. User control, whether the user receives exposure notifications and decide if and when to share their data.
8.2-> If the user has COVID-19, they may share that info with their app to help alert the people they've been in contact with.
8.3-> If user has been exposed to someone who has shared, they have COVID-19; the app will notify them.
8.4-> app can give them further instructions.
Priority level: Medium.
Precondition: Users have to have a valid ID.
Crossover: N/A.

9.Updates-
Functional requirement:
9.1-> User phone regularly gets updates in the background.
9.2-> The Exposure Notifications System was introduced in an update to Google Play Service and Apple Play Service.
9.3-> The system is turned off by default. This technology only works if user decides to opt-in.
9.4-> If the user changes their mind, they can turn it off at any time.
Priority level: High.
Precondition: The device has to have a sound system, and it should online.
Crossover: 4.1,4.2.

10.QR/Barcode Scanner-
Functional requirement:
10.1-> Barcode scanning of blood plasma. Hematologist scanning a bag of plasma extracted from donor blood with a barcode reader.
10.2-> The bag is seen on a set of weighing scales.
10.3-> All blood products are given a barcode and entered into a computer database to be identified throughout processing and administration.
10.4-> Careful records are kept so that all the blood products from a donor, batch, or laboratory can be traced in infection cases or other complications.
Priority level: Low.
Precondition: N/A.

Crossover: N/A.

11.System Input-
Functional requirement:
11.1-> This feature only allows every type of phone to get connected with the application.
11.2-> Input system may vary depending on the features that a phone has.
11.3-> Input features can only be generating an application via smartphone.
11.4-> In button phones user has to use a particular code to use the application feature.
11.5-> Only by this feature data can be edit, remove or update by the user.
Priority level: Medium.
Precondition: The device has to match with an excellent system.
Crossover: N/A.

12.Offline networking-
Functional requirement:
12.1-> By offline networking features helps the user, seekers, and donner to perform their task without having any online connectivity.
12.2-> Only the system features allow its user to save their data while working in offline mode.
12.3-> The feature shows the offline mode data collected while the apps were in an online mood.
12.4-> The system updates the of the user, which will generate in the offline mode as soon as the apps find any network source.
Priority level: Medium.
Precondition: N/A.
Crossover: 5.1,5.2.

Non-Functional Requirements

1.Security
Non-Functional requirement:
1.1-> Define specific threats that the system to be protected from bugs or malware or third party attack. For instance, such details should be considered: under what circumstances the unauthorized access takes place, what the precedents to the data breach are, what kinds of malware attacks want to fend off.
1.2-> Expand non-functional requirements to functional ones. The system is supposed to introduce constraints on generating, viewing, duplicating, editing, or deleting the data.
1.3-> Consider standards that rely on. The system must comply with some security standards or regulations; the non-functional section is the best place.
Priority level: High
Precondition: N/A
Crossover: 4.1
Example of security requirement:
The Plasma tracker processing gateway must be PCI DSS compliant.
2.Usability
Non-Functional requirement:
2.1-> Start with the old design. If the designer already has a product, consider measuring the number of errors, the time it takes to learn the interface, and complete tasks to set up a baseline and define usability goals.

2.2->Run usability testing on competitor products. If here don't have an existing product, run tests with competitors to reveal areas of improvement.
2.3->Test usability on prototypes rather than on a finished product. It has a no-brainer since usability must be established before your engineering even begins
2.4-> the user can learn, operate, prepare inputs and interpret outputs through interaction with a software system
2.5-> User Standards, Look, feel quality, languages, spellings.
Priority Level: Medium
Precondition: Users must need a valid account.
Crossover: 5.1,5.3

3. Flexibility:

3.1-> Users can easily access and adapt the software so frequently to utilize their needs.
3.2-> Developer can understand the user needs quick response so that they can customize the conditions and the user can understand the change easily
3.3-> Button should is to understand
3.4->Button should be in proper size so that the user can understand
Priority Level: Medium
Precondition: N/A
Crossover: 2.5

4. Safety:

4.1-> The extent to which the system is safeguarded against deliberate and intrusive faults from internal and external sources.
4.2-> The Ability to resist unauthorized attempts at the user.
4.3-> Login / Access levels,
4.4-> Password requirements, Create, Read, Update, and Delete
4.5-> Access permissions for application data may only be changed by the system's data administrator
Priority Level: High
Precondition: Need to create an account first
Crossover: 1.1,1.2

5. Reliability:

5.1-> The extent to which the software system consistently performs the specified functions without failure.
5.2-> The ability of a system to perform its required functions understated conditions for a specific period.
5.3-> preventative actions or procedures necessary to avoid failure
5.4-> Time to Recovery (if broken, how much time is available to get the system back up again)
Priority Level: High
Precondition: Users must need a valid account.
Crossover: 3.1,4.1,4.5

6. Maintainability:

6.1-> The system shall not be shut down for maintenance more than once in 24 hours.
6.2-> The ease with which faults in a software system can be found and fixed.
6.3-> Conformance to Technical design standards

Priority Level: Medium
Precondition: Users must need a valid account.
Crossover: 1.2,1.3

Project requirement

There are descriptions of a system property or attribute or how the system of project **PLASMA TRACKER** should behave. That is why project conditions play a significant role in the development and implementation of the project. They may be a constraint on the development process of the system. Some project requirements are given below by analyzing all the data regarding the project. They are used to develop new products and improve existing ones. This requirement will collect from the stakeholders, such as business units, users, and operations and developer experts. The following are illustrative examples of project requirements:

- **User:** The software is user-friendly, so requirements contributed by users are the lead users.
- **Features:** The software shall have a securely mounted balance between users and developers.
- **System Analyst:** The system will be updated every hour with recent and authentic information to deliver the users.
- **Business requirement:** Accurate monthly sales forecast required for the project. For that, a new sales system is needed to be developed. It will only authorize for specifics so that data will be secured.
- **Performance**: The software shall have a maximum user efficiency at least 90% so that everyone can use the software without issue.
- **Service requirement:** Services for the user and others will be available at least 99% of the time. Any bugs or malware issues can be fixed, and thus no one will face any interruption.
- **Risk:** The software server might get crashed, or the website might get broken. Due to heavy users visit the website at a time, and the chance is 0.1-.05%.
- **Quality:** The software will provide every user a premium quality security and user interface since the software maintains resourceful data and security quality.
- **Budget:** This software is a start-up, so it needs funding from the stakeholders. The percentage will be 60% for the stakeholders and 40% for the developers in the beginning.

EXERCISE - 3: Design Specification

Objective: Perform the user's view analysis and Develop a Design Specification of the Proposed
Solution (Use case diagram, Class diagram, Sequence diagram, State diagram, activity diagram)
Tools/ Device: UML tools
1. UMLet: https://www.umlet.com
Procedure:
1. Prepare a standard Software Design Specification document that specifies the System's functionalities that represents narrative of the design specification with diagram (Use

case diagram, Class diagram, Activity diagram, and Sequence diagram)

(A) Identify and analyze various processes, use-cases, actors etc. of the system. And, use processes at various levels to draw the use-case diagram.

In Plasma Tracker System, A user can create an Id with his/her email ID, Mobile Number, or NID. When a user opens an id, the system wants to verify the user; this process will need to open a valid id, after Completing the id creation. The user can select as he/she is a donor, or he/she is a seeker. If the user is a seeker, the system will suggest the plasma donating location. If the user is the donor, the system will show the plasma needing location. After giving all the information, the system will show the location of all the user needs. And Then, track the nearest location of the user place then track the location User can locate their last GPS by offline mode or online mode, whatever the user needs. If the user is a seeker, then he/she can locate the last location of the giving place. There is also an admin who manages the whole system. He also maintains the database of the system. There is also a Maintenance Engineer. When the user gives feedback to the system, the Maintenance Engineer answers the feedback of the user. When the user gives his/her using experience to the system. The maintenance engineer wants permission to modify it from the admin. if the admin gives the permission

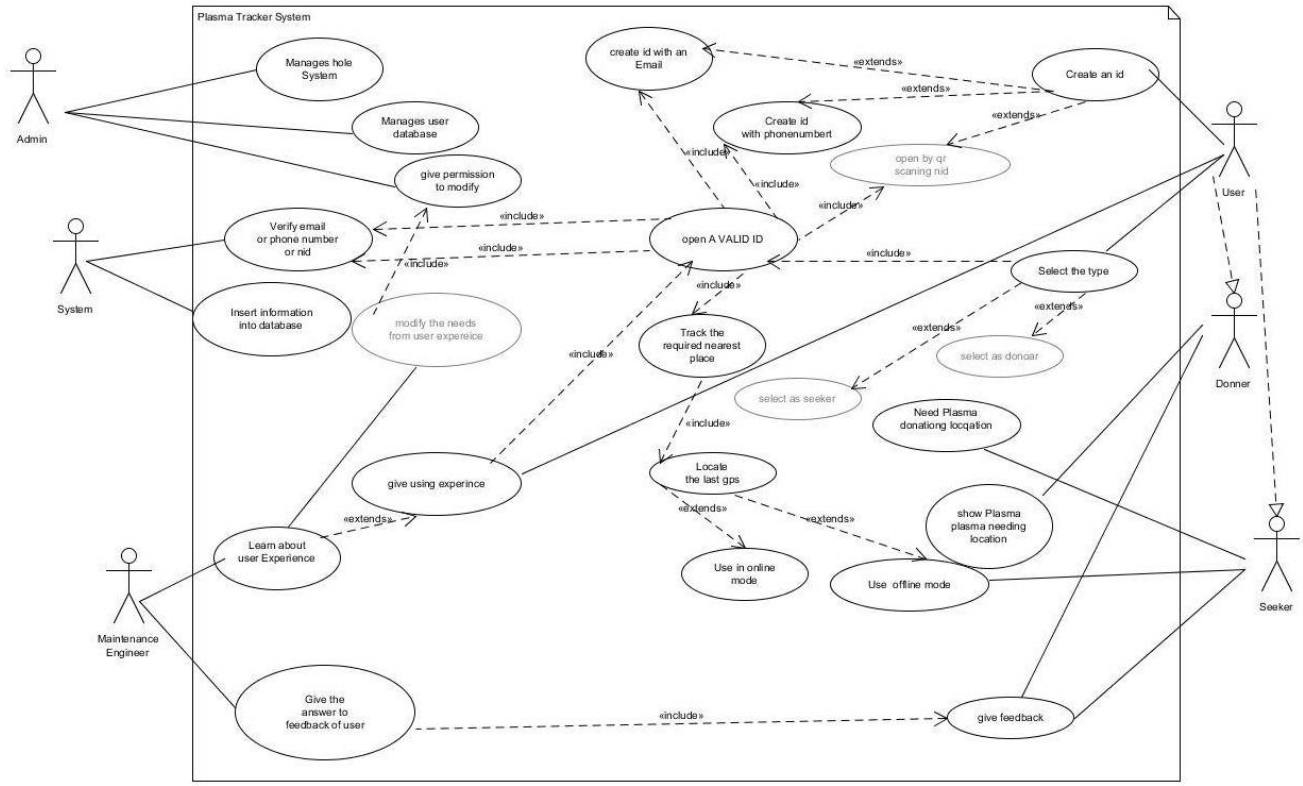


Figure: Use-case diagram

(B) Identify various elements such as classes, member variables, member functions etc. of the class diagram. And, draw the class diagram as per the norms.

In This Plasma Tracker System, A User must create an id with his or her email and phone number or NID to login to this system. After Creating the id, the User needs to select the language (It is not mandatory). Then the User will choose himself as a donor or seeker. By choosing, if the User will make donor, then he gets the option to donate plasma to the seeker location or Plasma bank, Hospital or his information that when the seeker needs, they can find him/her if User will seeker then he will get the option of plasma bank or donor location. The

seeker can chat after he knows that this donor has plasma that he needs. All information will store on the system database that only access-able by Admin. Here Admin manages the whole system; he will develop the system, update User's info on the database. Her other on who also has access to maintain the whole system. He/she is a maintenance engineer. Admin will give him or her access to maintain the system. However, all the time, he needs permission from Admin to update the database, develop system **function**

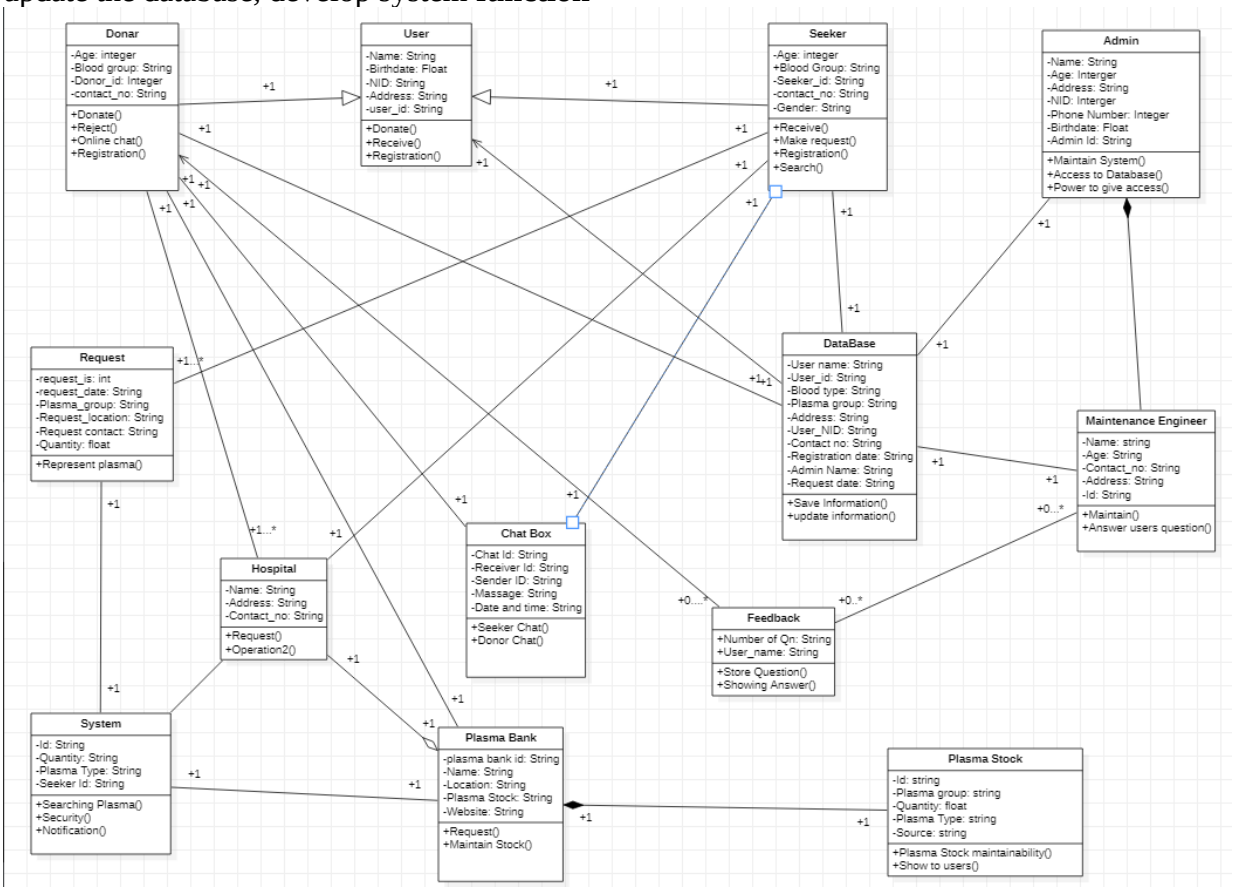


Figure: Class diagram

(C) Identify various elements such as controller class, objects, boundaries, messages etc. of the sequence diagram. And, Draw the sequence diagram as per the norms.

In plasma tracking system, verify if a user will be able to login with a valid user id and valid password whether a user cannot login with a valid user id and an invalid password. If user id is valid, verify the login page redirection to main page otherwise id will be invalid. Then the field is showing display error and user get the 'Forgot Password' functionality. Enter the valid email address, user can be able to enter the login page. After the successful enter user can be able to find the account from database system. Verify database return a 'code' functionality to login page. After returning this code, user can easily receive the code from login page. Send verification code to user email from login page. After successful verification code is valid from database system. Verify if the code is correct, a user will be able to login with a new password only after he/she has changed the password. User can easily enter the new password. Then password will be updated in database. If code is valid, verify the login page redirection to main page otherwise code will be invalid and display will be error. User sends logout request to login page. Login page then request database to delete this session

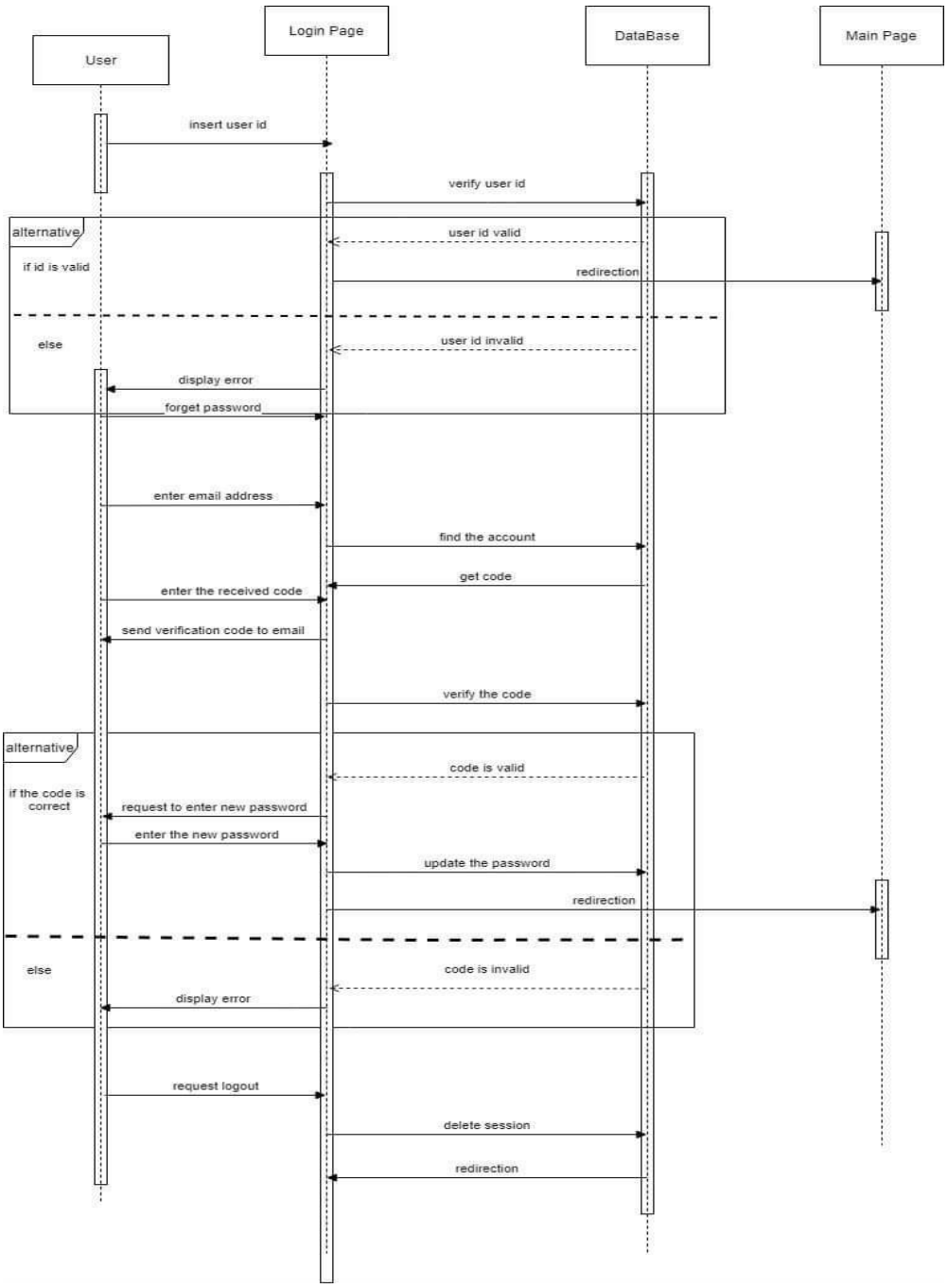


Figure: Sequence diagram

(D) Identify various actions and corresponding events of triggering actions. And, draw the activity diagram as per the norms.

In the plasma Tracker System, A user can open his/her account for donating or seeking the plasma. First, the user will request to create an id; then, the system checks if the user gave a valid phone number or valid email; if the email or phone is not valid, the system wants to scan the user Nid to open an account. If the user fails to give valid Nid, the system will start from the beginning. If the phone number or email is valid, a notification sent to the email/phone number and the verified account will be created simultaneously. If the account status is open, the system

will check what the user needs is. If the user needs to seek the plasma, then he will get the option of the nearest place to collect the plasma; then, the system will check if the user is an online mode or off linemode. If the user is in the online mode, then there is the GPS tracker that locates the places. If the seeker is the offline mode, it will show the user's last location. The donor will search for the place where the plasma is needed.

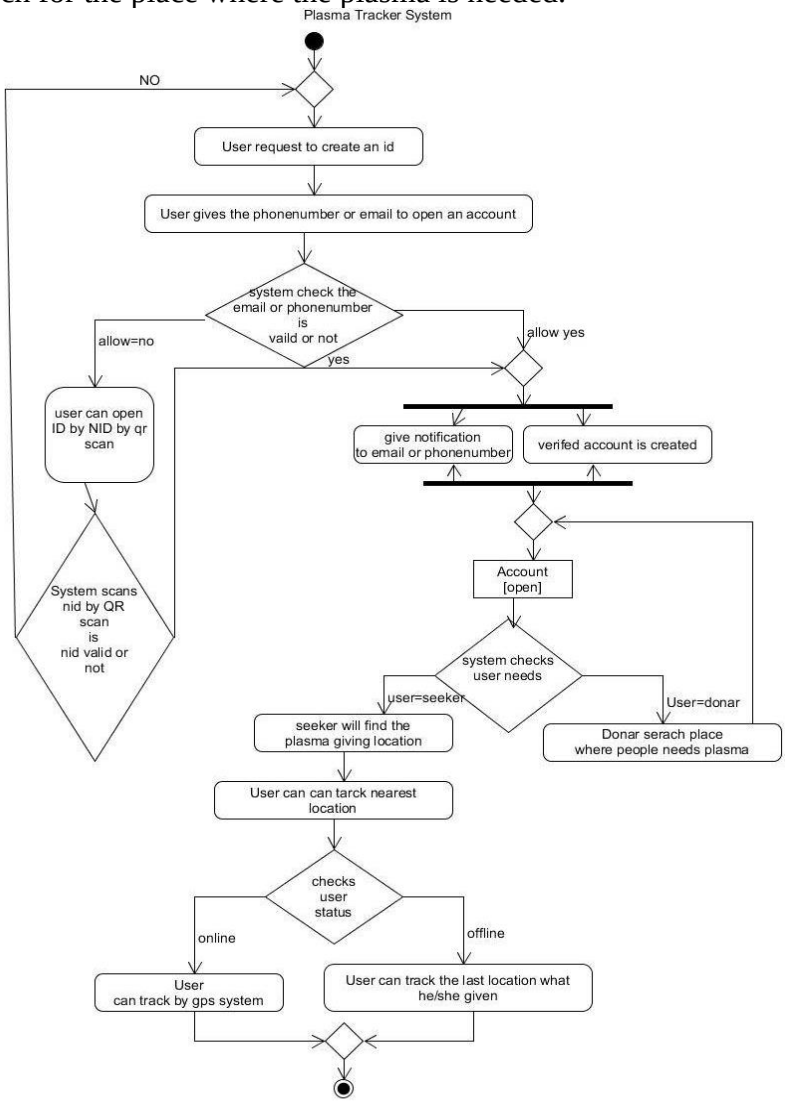


Figure: Activity diagram

Evaluation: Your Design Specification must address the following questions:
1. Does the use case narrative represent the Scenario of the use case diagram? Does the Use The case diagram includes the major use cases, actors who perform the use cases, and the relationships among the use cases needed to deliver by the system?

There are some rules to draw a use case diagram. There will be actors and use cases. There will be a relation between actors, or there will be some relation between the use case. For the relation use case, if one needs to do before starting the next, we use a keyword called includes and optional tasks that will perform after the main task is done. The actors should be in noun form, and the use cases will be verb form. As we draw the system's use cases, we follow all the rules to

draw a primary use case diagram. There are five actors in the system, and some actors have some everyday use cases as we see in the system, and we also give the relation of task performance. So, in our opinion, we follow all basic rules of the use case diagram to modify, then the maintenance engineer can modify.

2. Does the class narrative represent the Scenario of the class diagram? Does the Class the diagram includes the major classes (attributes, operations) and the relationship among the classes needed to deliver by the system?

This Class diagram is designed by Studying cases and using all the following rules. So now we see that there is some class which is needed to make this diagram. Here User class has two Inheritance classes (Donor and Seeker). A total of thirteen classes were used to design this class diagram. When the seeker requests plasma, request a class call system to find out plasma info for the seeker. System Class starts to find plasma by searching for a hospital class or plasma bank. If the Bank or hospital has a stock of plasma, then Send it to the seeker. Seeker class directly chat with the donor by using chat. Admin mainly controls the whole system. The maintenance engineer does the rest of the system's work, but he has no access to a database. However, sometimes admin gives access to the system database to Maintain an engineer to maintain the system. This Class diagram shows all the task performance and all the user's basic needs to use the system.

3. Does the activity narrative represent the Scenario of the activity diagram? Does the Does the activity diagram include the major activities needed to deliver by the system?

The activity Diagram, which is drawn by the case study, is followed by all the rules. So, we see that some states, Decision boxes, and the system's status are needed to draw an activity diagram. As we draw with significant activities of the system and which are the needs of the user. The system contains some Decision making which will face the user when he/she is using the system. Firstly, it starts with a state where the user wants to create an id, then he/she will give the email or phone number to the system; the Decision box will check the system's validation. So, after verifying, two things will happen simultaneously. After that, there is a status where the system has a status, and that is the account open. the rest decision will happen one after another has described that this system is mainly used for donating or need the plasma from the user so this activity Diagram is showing all the basic needs of the user in this System

4. Does the sequence narrative represent the Scenario of the sequence diagram? Does the The sequence diagram includes the sequence of the major activities needed to deliver by the system functionalities?

The Sequence Diagram Show that the User verification, login process of the system.
1st of all user needs to open a valid id to use this system, if the user uses a non-valid id and password, he or she or user cannot login in this system. Moreover, if it is valid, then the user needs to verify the login page. If the user can't, then id will be disabled. If the user forgets the password, then the user can reform his password. By using a valid mail id, and the system will generate a random code, and it will send used by a mail. After successful verification user will

change his/her password. If you fail, then system will go back to the home page. Everything will be saved in the database system. It is all the functional system that helps the user how to use this system.

EXERCISE - 4: Selection of Process Model

EXERCISE - 4: Selection of Process Model

Objective: Selection of appropriate process model for the software development

Tools/ Device: Protégé Ontology Development tool to check rational and consistency of your process model selection.

Procedure:

1. **Study the Software Engineering process model to appropriate process model to develop your proposed system solution.**

The software engineering process model has so many development models that can be utilized to develop software. The software named Plasma Tracker Agile development process model is appropriate since it is fulfilling the criteria needed by the software. The agile process model contains flexibility; it is a state of dynamic, adapted to the specific circumstances. This software development refers to software development methodologies centered around the idea of iterative development, where requirements and solutions evolve through collaboration between self-organizing cross-functional teams.

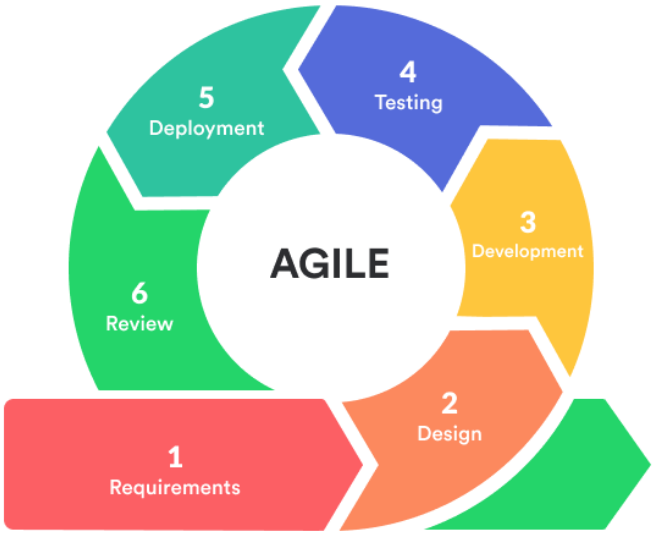
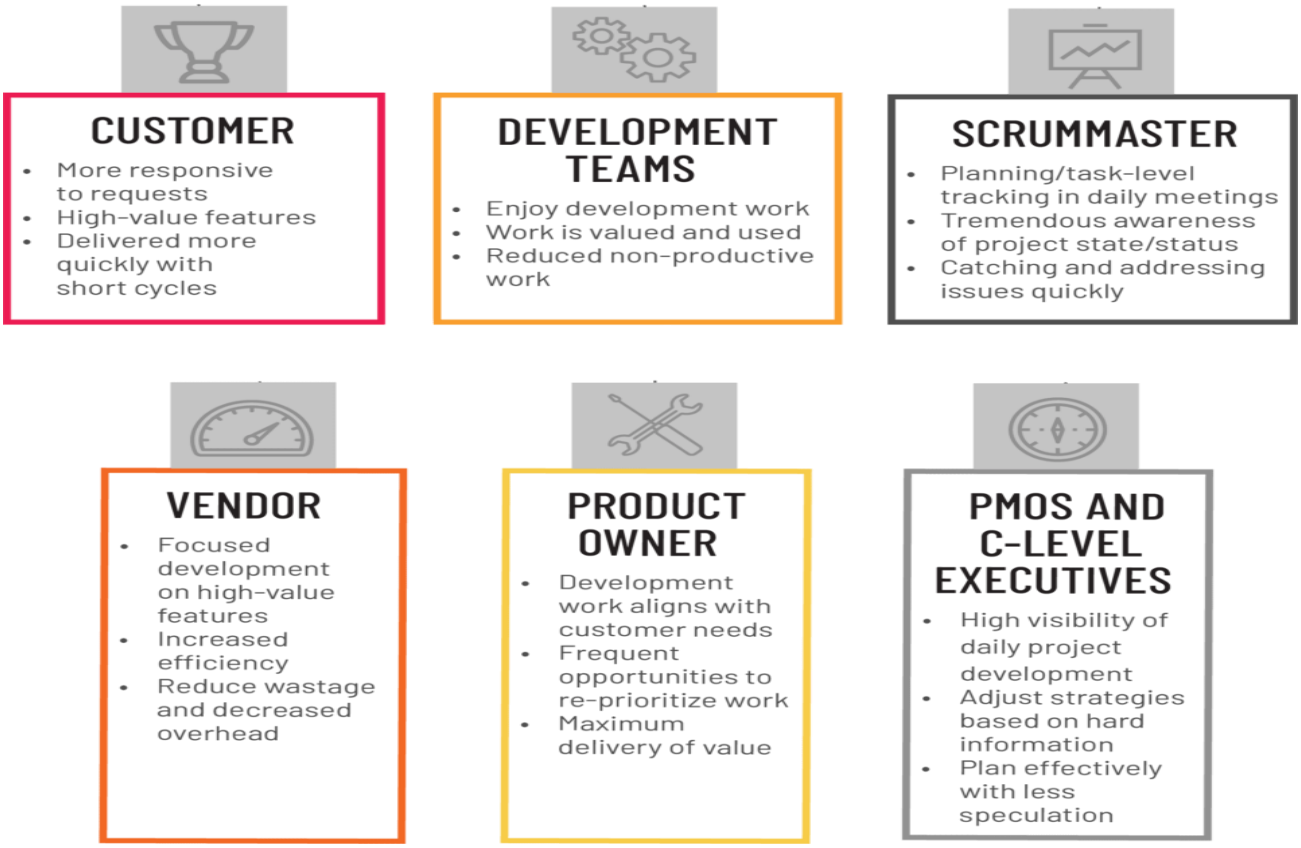


Figure: Agile development process model

The ultimate value in Agile development is that it enables teams to deliver value faster, with more outstanding quality and predictability, and more excellent aptitude to respond to change. This process model (Agile process model) is best suited for the application where the requirements change rapidly during the development process.

2. Present your arguments based on your analysis of why your selected method(s) is the best choice among all other methods to develop your proposed software.

Developers use the agile development process model to minimize risk such as bugs, cost overruns, and changing requirements when adding new functionality, which are beneficial terms for the Plasma tracker. In agile development process model methods, developers develop the software in iterations that contain mini-increments of the new functionality. There are many different agile development methods, including scrum, crystal, extreme programming (XP), and feature-driven development (FDD). It suits small-medium-sized projects like the project Plasma Tracker, with rapid changes in the requirements as customers are involved during each phase. Minimal planning is required to get started with the project. It helps the company save time and money (as a result of customer physical interaction in each phase).



The implementations or daily develop mentation make it possible to measure productivity. The primary benefit of agile software development is that it allows the software to be released in iterations. Iterative releases improve efficiency by allowing developers to find and fix defects and align expectations early on to connect more users for the application. They also allow users to realize software benefits earlier, with frequent incremental improvements.
Other development process models like the waterfall development model, V-model, Iterative development model, Incremental development model, Rapid action development method contain slow and costly due to its rigid structure and tight controls. These drawbacks can lead these methods users to explore other software development methodologies. Moreover, those require stable developer composition with high skills and users who are deeply knowledgeable about the application area. In-depth knowledge is essential in a condensed development timeline that requires approval after each construction phase. Even in light of its benefits, there are a few drawbacks to all those other development process methods.

Though the Agile process model is challenging to scale up to large projects where documentation is essential, however, analyzing among all the methods, the best choice is an Agile process model to develop the software named Plasma Tracker.

3. Identify all the roles in the project management activities in software development. Describes the responsibilities of the role in the software development.
Your Design Specification must address the evaluation rubrics mentioned in the software engineering course outline.

In the Project name Plasma Tracker, various types of rolls in the project management activities can be found depending on their activities, including projects, estimation of cost in different sectors, or steps performance. Based on the project plasma tracker, the roles in the project management activities and combined in an additional role call Maintenance Engineer in this project, so a list of project management activities in software development is given below.

Analyzer and managing Engineer:
The bigger the project is, the more likely there are to be hurdles and pitfalls that were not part of the initial plan. A good analyzer and managing engineer knows how meticulously and almost identify and evaluates potential risks before the project begins. They know how to avoid risks then or at least minimize their impact.

Developer: developers are the heart and soul of the process; the developer writes the development Leads provided specifications.

Development Manager: The Development Manager is responsible for managing multiple priorities of conflicting projects. The Development Manager role is also an escalation for the team's issues, which it is unable to resolve internally. Of course, each organization has its take on these roles; however, these are the roles you will see most often in an organization doing development.

Data miner: Data miner knows how essential final reports and proper documentation are. Good data miners can present comprehensive reports documenting that all project requirements were fulfilled and the projects' history, including what was done, who was involved, and what could be done better in the future.

Functional Engineer: Functional Engineer has the unenviable task of selecting precise, non-conflicting requirements from the Subject Matter Experts who may or may not understand how technology can be used to transform the business processes in a positive way

Project Manager: The Project Manager is responsible for ensuring consistent reporting, risk mitigation, timeline, and cost control. The project manager role is a problem-solver role. They try to resolve problems while they are small to be handled more quickly and at less cost.

Exercise - 5: UI and UX Design

UI Design for the project is given below:

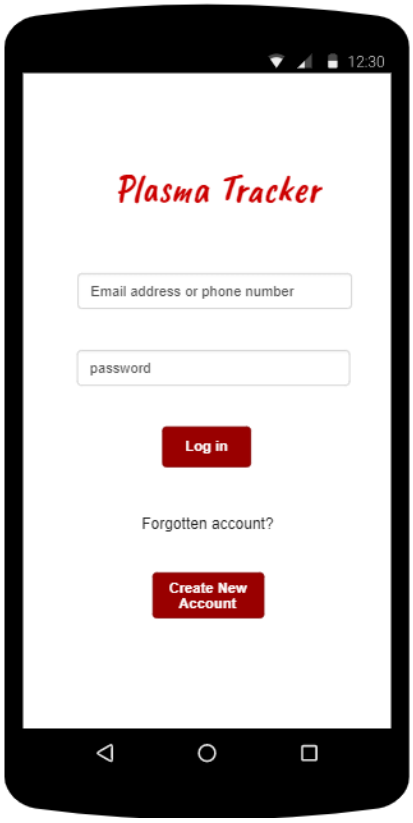


Figure 5.1: Homepage

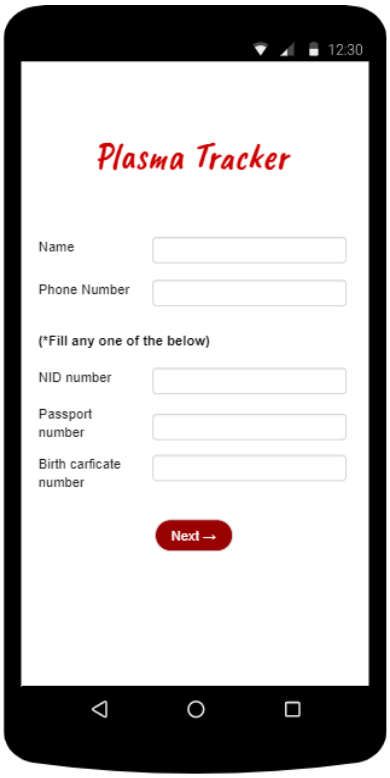


Figure 5.2: Create_new_account_page_1

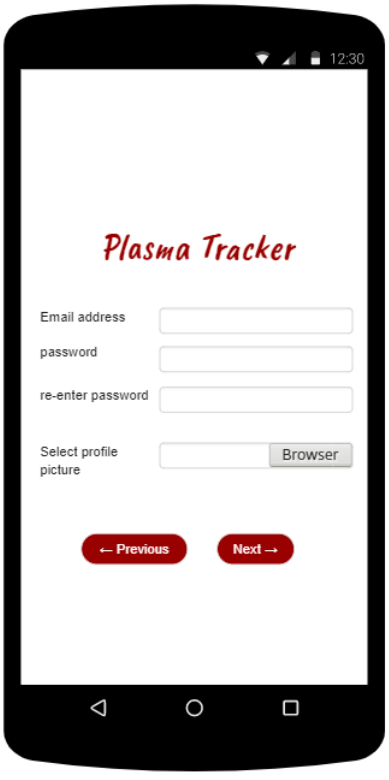


Figure 5.3: Create_new_account_page_2

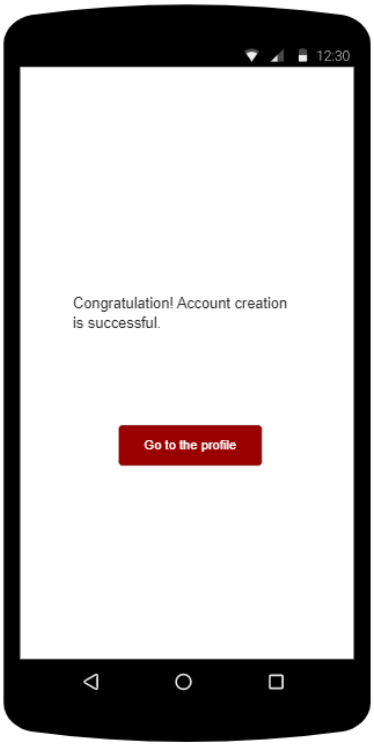


Figure 5.4: Create_new_account_page_3

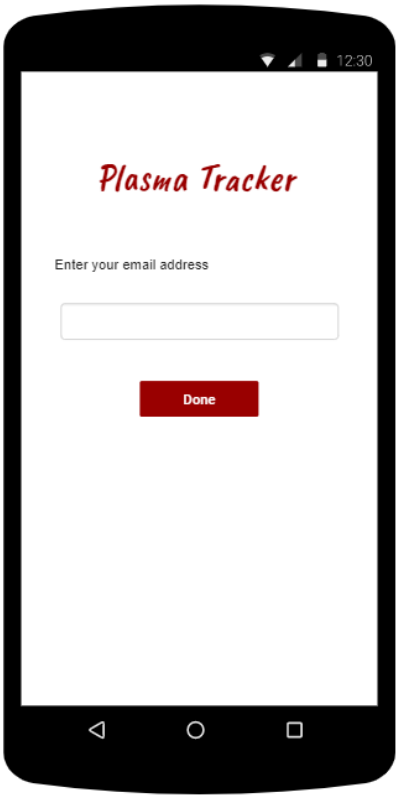


Figure 5.5: Forgotten_account_page_1

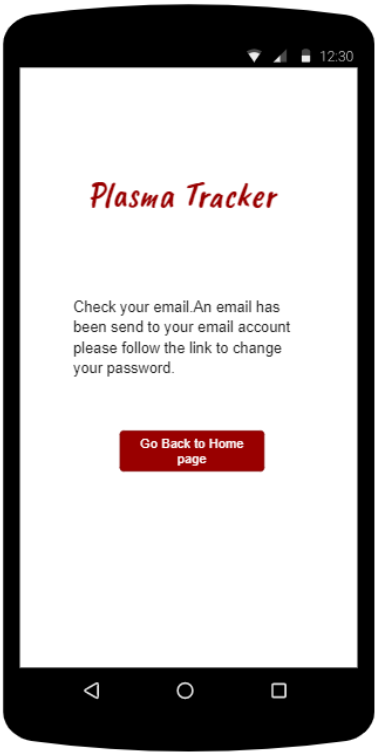


Figure 5.6: Forgotten_account_page_2

Figure 5.7: User Profile

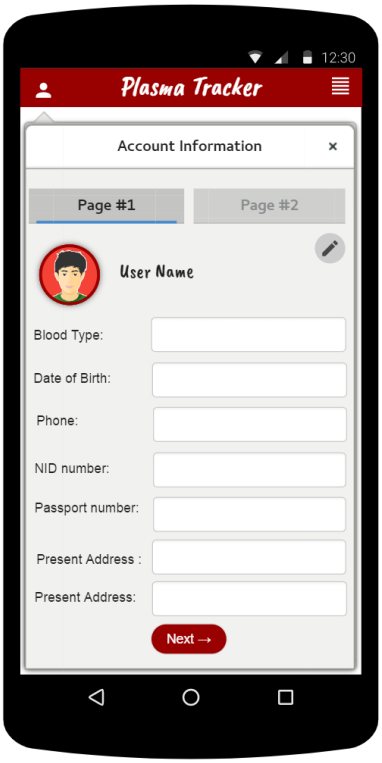


Figure 5.8: User account

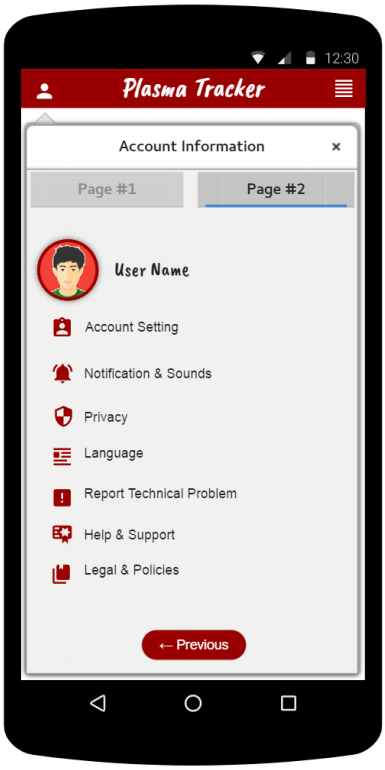


Figure 5.9: User_account_page_2

Exercise - 6: Project Test Planning

Project Name: Plasma Tracker	Test Designed by: Dola
Test Case ID: SF_1	Test Designed date:30/8/2020
Test Priority (Low, Medium, High):High	Test Executed by:
Module Name: System login Session	Test Execution date:

Test Title: Verification of login with valid username and password

Description: Test Application login Phase.

Precondition (If any): Account Holder must have valid username and password.

Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1.Go to Application login page. 2.Enter User ID. 3.Enter User Password. 4.Click Submit.	User ID: Saad@hotmail.com User Password:123	User can Login into the Application.	As expected	Pass

Post Condition: User have to contain a valid user id with a valid password with database to successfully login to his/her account. The account session details are logged in the database.

Project Name: Plasma Tracker	Test Designed by:Dola
Test Case ID: SF_3	Test Designed date:30/8/2020
Test Priority (Low, Medium, High): High	Test Executed by:
Module Name: System Security Session	Test Execution date:

Test Title: Verification of System Security with forget password and ID

Description: Analyzing App System Security .

Precondition (If any): Account Holder must have valid account with valid E-mail and phone number.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the Application. 2. Click forgotten. 3. Enter valid E-mail or phone number. 4.Use the link that send to the E-mail or the phone number. 5.The link will help the user to change the password.	Mail: User@gmail.com Code:101010101	User will get the opportunity to change the old password and will get a new password.	As expected,	Pass
Post Condition: User given E-mail or phone number have to match with the System Database to get the link for changing password.				

Project Name: Plasma Tracker			Test Designed by:Dola	
Test Case ID: SF_2			Test Designed date:30/8/2020	
Test Priority (Low, Medium, High): Low			Test Executed by:	
Module Name: System Language Session			Test Execution date:	
Test Title: Verification of Language Change. Description: Analyzing Language Changing System				
Precondition (If any): User must have valid account.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)

1. Go to the Application. 2. Enter User id and password to login to the user profile. 3.Going to the User account select the Language icon. 4. Select a prefer language.	Language Type: 1.Bangla 2.English	Account holder Should get his/her selected language.	As expected,	Pass
Post Condition: User must have to download the application. And the device has to support the application and also the language.				

Project Name: Plasma Tracker Test Case ID: SF_8		Test Designed by: Sad Test Designed date: 27.08.20		
Test Priority (Low, Medium, High): Medium				
Module Name: Location Tracking				
Test Title: Testing the GPS work and show the accurate selected place				
Description: Location feature is a GPS system in map that Android or Apple displays top the icon of app's UI to provide the user that user can choose his destination for donating or collecting the plasma in the hospital and the location tracing feature will show the nearest hospital or medical center Precondition (If any): User has to valid ID. If user seriously want to get a notification from app to ask them to update (so that everyone gets the notification)				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Search the place 2. show the nearest palace 3. Track the location distance	Location tracking Required: GPS and Map	The tracker should tracker the input that are given via user.	As expected	pass

4. Provide the last selected location in off line 5. Tittle 6. text				
Post Condition: User must contain a device that has GPS and Map features and locations have to be on while using the tracking system and if the user use VPN he/she have to turn it off.				

Project Name: Plasma Tracker Test Case ID: SF_7		Test Designed by:Sad Test Designed date: 27.08.20		
Test Priority (Low, Medium, High): Medium				
Module Name: Feedback				
Test Title: User will give feedback or comment or give his/her experience for the system				
Description: Feedback feature is a interaction tool which will help the developer to learn more about user's drawbacks and problem from the user itself. Feedback feature gather the information from the user and give them the suggestion of using the system. Precondition (If any): User should contain a valid ID so that it helps the developer to know which user having problem in which terms specifically.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)

1. Go to the User account. 2. Select the feedback option. 3. Write the issue (can also add screenshot). 4. Click the Done button 5. Will receive a text of regarding the issue.	Notification Required: Reply or Archive	After Submitting the feedback regarding the issue that a user is facing, they will receive text with solution from the application.	As expected	pass
Post Condition: User have to provide the specific information so that his/her problem can be solved/She can provide screenshot to give a feedback				

Project Name: Plasma Tracker Test Case ID: SF_9		Test Designed by: Anwar Test Designed date: 27.08.20		
Test Priority (Low, Medium, High): High				
Module Name: Updates Session				
Test Title: verify update session with valid play store account				
Description: Test update version so that everyone gets the notification. User Google play or Apple store settings are, then Admin will have to make a web service which returns the number of the newest version. Precondition (If any): The device has to valid system and it should online.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the play store or apple store	Update Required: Close app or	User should go to the play store or apple store	As expected	pass

2. make a web service 3. returns the newest version	Download update			
Post Condition: If user seriously want to get a notification from app to ask them to update (so that everyone gets the notification)				

Project Name: Plasma Tracker Test Case ID: SF_8		Test Designed by: Annwar Test Designed date: 27.08.20		
Test Priority (Low, Medium, High): Medium				
Module Name: Notification Session				
Test Title: verify notification session with valid update session				
Description: Notification feature is a message that Android or Apple displays top the icon of app's UI to provide the user with reminders, communication from other people on time. Precondition (If any): User has to valid ID. If user seriously want to get a notification from app to ask them to update (so that everyone gets the notification)				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. By opening the application select the notification option 2. select the types of the nonfiction. 3. Nonfiction will pops up the display.	Notification Required: Reply or Archive	Device will inform the user that notification delivered by pops up the notification in the device with sound an vibration	As expected	pass
Post Condition: N/A				