Online Blood Bank

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A project submitted in partial fulfillment of the requirement for the degree of Bachelor of Science in Software Engineering.

Supervised By:

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Approval

This project titled "**Online Blood Bank**," submitted by **Mr. Tahsin Ahmed**, **ID: 153-35-1323 to the Department of Software Engineering, Daffodil International University**, has been accepted as adequate for the partial achievement of the specifications for the level of Bachelor of Science in Software Engineering and approval as to its method and contents.

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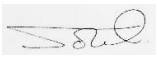
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Declaration

It hereby declares that I have done this project under the supervision of **Md. Khaled Sohel,** Assistant Professor, Department of Software Engineering, Daffodil International University. It is also declared that neither this thesis nor any of this has been submitted anywhere else for the award of any degree.

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ACKNOWLEDGEMENT

I would like to be thankful to Daffodil International University for supporting me with my supervisor **Md. Khaled Sohel** for his constant supervision, guideline and advice. Also, I am grateful to all of my teachers, parents and members of DIU for their support and encouragement.

Executive Summary

Blood Bank Project is built by targeting the society, humanity, and the community to manage it from a center.
Users can see the blood donors in a center with details. They can request blood for a date from the donors.
The admin can manage the system; he can either approve or reject the member by checking the details.
Members can register for a donation of blood. Blood seekers can find the donors here.

TABLE OF CONTENTS

Chapter I

INTRODUCTION

Chapter 1:

Introduction

1.1. Project Overview

Social life is being modernized nowadays with the IoT. Every human are being covered under IT and online. Events are are being organized through online. In this time people need a system to manage and donate blood for humanity. Though few of the projects cover the area now a days. Those charges money for donating and collecting bloods. This project will help all these people to manage, donate and collect blood for their own or others.

1.2. Project Purpose

The main reason of this system is to help the humanity, so that they can request for blood, collect blood and donate their bloods. This system allows to request for blood for other people who are unable to request directly and help to donate bloods of those people who are unable to use the system directly.

1.2.1 Background:

Before this system people used to go physically to the center or the location to collect or donate blood. Few systems were also helping people to use online system with some charges. This project will provide full free system to the users. Also people can make donate request for other people as well as blood request. From these perspectives of view, I decided to build this project to help in this condition.

1.2.2 Benefits

The system will reduce the problem of blood donation echosystem. This system will help people to manage the blood, donate and blood request easily in any time. It will reduce time, cost and increase the opportunity of helping the humanity.

1.2.3 Goal

Our goal is to automate the Blood Donation management system for all the donors, seekers and helpers who want to help donating and collecting bloods.

1.3 Stakeholders

There are four types of stakeholders in this system:

1) Development team.
2) Admin
3) Users (Blood Donors)
4) Users (Blood Seekers)

1.4. Proposed System Model

This system is going to hold one of the most excellent blood donating applications for the blood. Firstly some applications exist. Besides, this will give some extra functionalities like free blood donation and collection. This system will be using the waterfall model to get fired easy development and quicker conclusion of required software requirements.

1.4.1. Waterfall-Model

Our proposed system model is the waterfall model because our specifications are fixed.

1.4.2 Why and how I used waterfall

Waterfall is the most familiar variant of the application development life cycle for software engineering and information technology projects. It continues through a sequential, single-direction manner that flows like a waterfall.

I have described the key elements of Waterfall, including its phases, benefits and disadvantages, strategic observations to Agile, and definitions of two essential structures leveraged in Waterfall: work breakdown structure and the critical path method. In extension, I find valuable sources to help create effective Waterfall charts for the next project.
Focus on producing working software regularly. Projects must be based on motivated people.

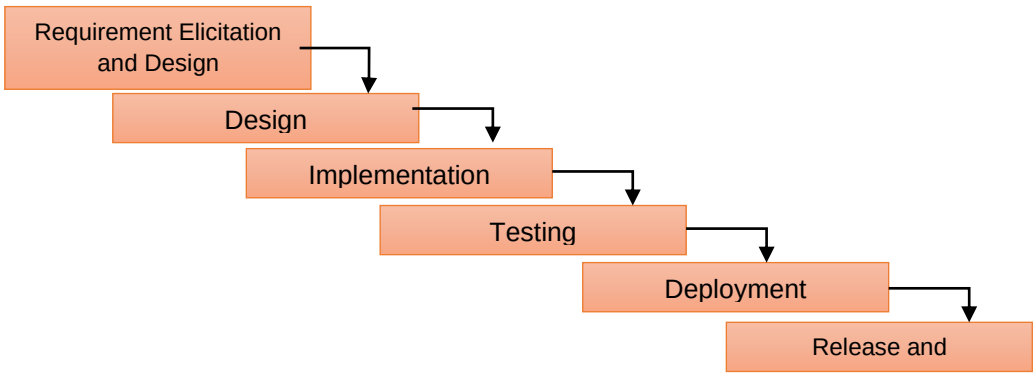

Figure 1.4.2 : Proposed System Model

1.5. Project Schedule

This project schedule is noted below in this project's Gantt Chart, exercises, and deliverables, with planned begin and complete dates. A schedule is usually used in the project outlining the administration of the project.

1.5.1. Gantt Chart

This Gantt chart here is a result control tool. By using this mechanism, I can track the business which is ended or not.

Activity	**Name of Task**	**W 1**	**W 2**	**W 3**	**W 4**	**W 5**	**W 6**	**W 7**	**W 8**	**W 9**	**W 10**	**W 11**	**W 12**
Planning	Idea												
	Problem defining												
	Planning												
Requirement	Requirement clarification												
	Requirement analysis												
System design	Drawing												
Database design	Design specification												
Development	Coding												
	Implementation												
Testing													
Delivery													

Figure 1.5.1: Gantt chart

1.5.2. WBS Planning for Development Phase

Activity	Time Duration	Total week
Interview	Week 1	1
Brainstorming	Week 1	1
Problem Defining	1 Week 1, Week 2	2
Requirement clarification	Week 2	1
Requirement analysis	Week 2, week 3	2
Drawing	week 3, Week 4	1
Design specification	Week 4, Week 5	2
Coding	Week 5, Week 6, Week 7,Week 8	4
Implementation	Week 6,Week 7, week 8, Week 9	4
Testing	Week 5, Week6, Week 7, Week 8,Week9, Week11	7
Delivery	Week 12	1

1.6 Related Work

There are a few applications for blood donation management systems. However, no such application can provide free service to both blood donors and blood seekers.

1.7 Problem Statements

● There are a few or no options that provide totally free service.
● No system can make the request for blood for another person who needs blood or help donate the blood.

1.8 Proposed Solution

I saw the problems with the existing system. So, I will fix all and develop that

- User-friendly UI layout.
- Free of cost.
- Easy blood management.
- Easy member management.
- Easy blood request.
- Easy blood donation.

Chapter II

SOFTWARE REQUIREMENT SPECIFICATION

Chapter 2:

2. Software Requirements Specification:

The Software requirement specification describes the user demands and essence of a project. Usually, the paper is written early in the validation method. It is made for any kind of project or application for preparing the system. Some precepts need to be ensured to prepare the SRS report. This report holds reports of the application, security, and outlining method.

2.1 Functional Requirement:

- Authentication
- Authorization
- Registration for blood donation
- Blood management
- Blood request
- Member management
- Area based blood donation
- On demand searching

2.2 Data Requirements:

2.2.1 User Registration

- Full Name
- Username
- User Email
- User Password

2.2.2 Blood Request

- Patient name
- Sex
- Blood Group
- Unit of blood need
- Hospital name
- Date when blood need
- Contact person for blood donation
- Address where to donate
- Email
- Patient contact
- Reason why blood need

2.3 Non-Functional Requirements:

- Availability
- Reliability
- Data Sanity
- Recoverability
- Maintainability
- Security
- Data Integrity
- Usability

Table 2.3.1: Software Requirements Specification

ID	Requirement Name	Description	F / N	Priority
001	User Login	General user can login	Functional	High
002	User Registration	Users can registrar	Functional	High
003	Creating Blood Request	User can request for blood	Functional	High
004	Update Profile	Users can update their profiles	Functional	L
005	Register for Donate	Users can register for blood donation	Functional	High
006	Manage Members	Admin can edit/delete members	Functional	M
007	Member Approval	Admin can approve members to be active	Functional	High
008	Search for Blood	Users can search for their desired	Functional	H

		blood group and area		
009	View Donor Info	Users can view donors detailed information	Fictional	L
010	View Own Blood Requests	Users can view the requests of blood requested by own	Functional	M
011	View others Blood Request	Users can view other members blood requests	Functional	M
012	Add Location	Admin can add new location where users can request for blood	Functional	L

Chapter III
REQUIREMENTS ANALYSIS

Chapter 3:

3.1 Use Case Diagram:

3.1.1 Use Case Diagram for Admin:

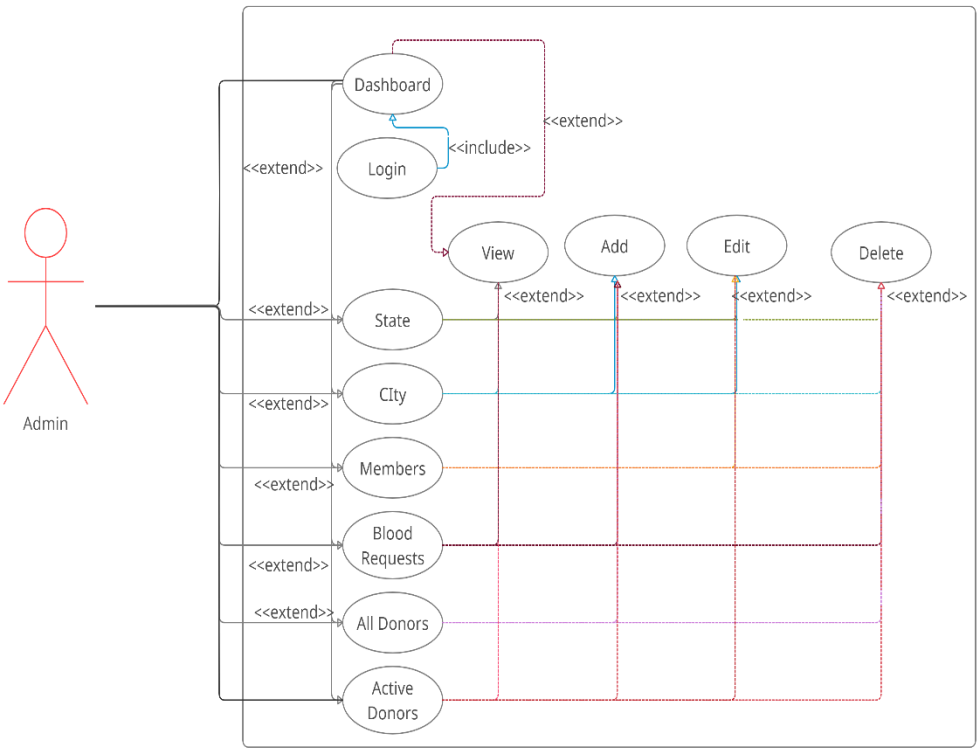

Figure 3.1.1: Use Case Diagram for Admin

3.1.1.1 Use Case Description for Admin:

Use Case	Admin Role
Goal	Manage blood requests, members and locations.
Preconditions	Must be authenticated with the user id and admin password. User type must be Admin
Post Condition	Admin can view data and update or delete data.

Primary Actors:	Admin
Secondary Actors:	Blood donors and blood seekers
Trigger	Change data.
Description:	Admin view report of all data. Modify user data, blood request and admin can also request for blood. Admin can add, edit approve and delete information.
Alternative Flows	N/A

3.1.2 Use Case Diagram for User:

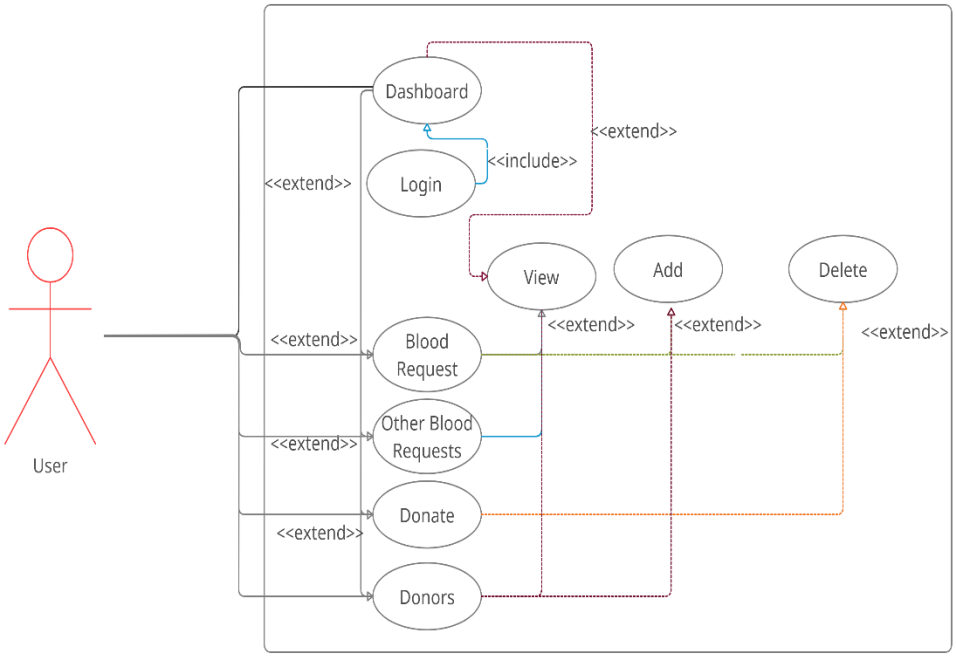

Figure 3.1.2: Use Case Diagram for General User

3.1.2.1 Use Case Description for General User:

Use Case	User Role
Goal	To request for and donate blood
Preconditions	Must be authenticated with own user id and user password. User type must be general user
Post Condition	Users can view all own info and all blood request
Primary Actors:	General User
Secondary Actors:	Admin
Trigger	Login
Description:	User can view blood requests, create request for blood and delete own existing request.
Alternative Flows	N/A

3.1.3 Use Case Diagram for Login:

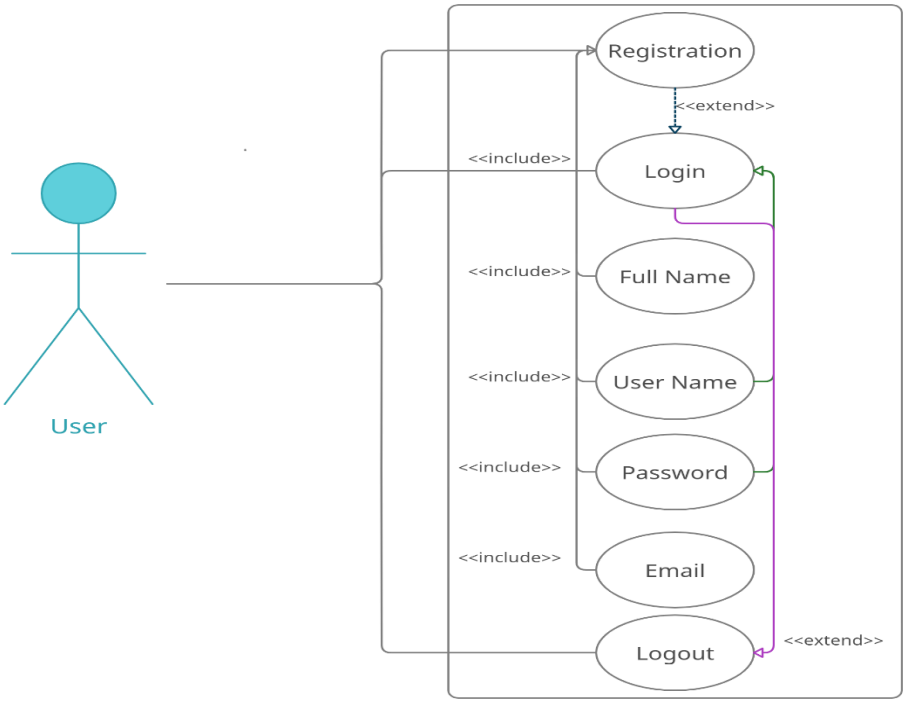

Figure 3.1.3: Use Case Diagram for User Authentication

3.1.3.1 Use Case Description for authentication:

Use Case	User Role
Goal	To be registered as new member and access the system
Preconditions	Must have user name , email and passwod
Post Condition	User can access the system
Primary Actors:	User, Admin
Secondary Actors:	Admin

Trigger	Login/ Registration
Description:	Users can access to the system and perform own accessed activities
Alternative Flows	N/A

3.2 Activity Diagram:

Activity diagrams can be practiced in all steps of software construction to describe the flow of application activity.

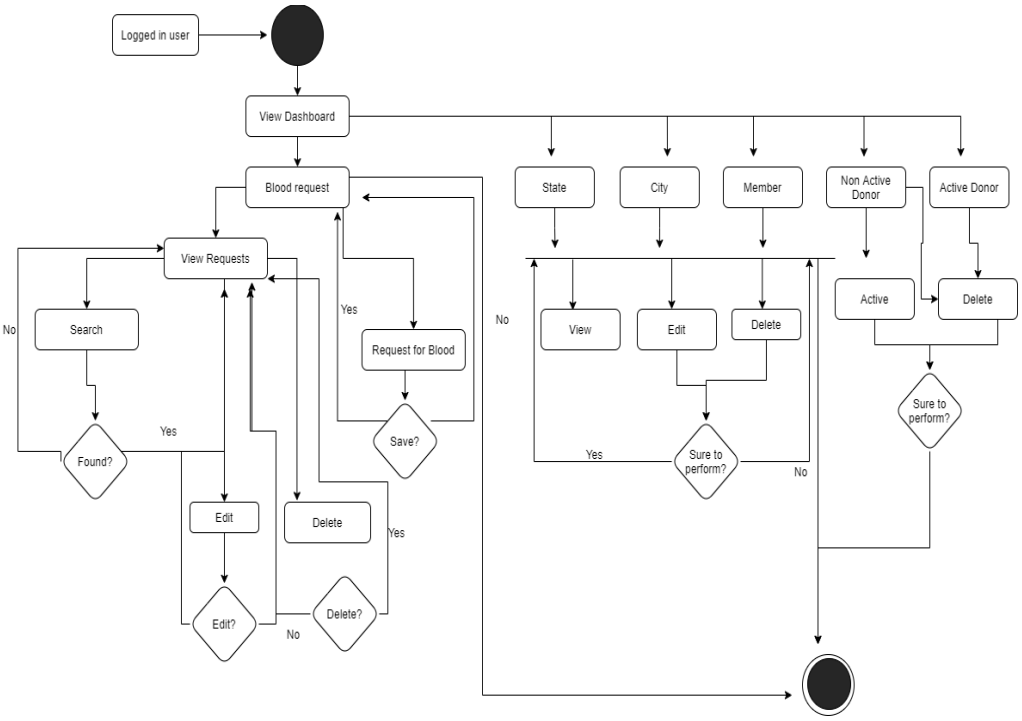

Figure 3.2.1: Activity diagram (Admin-Dashboard)

This figure represents the activity of admin login to continue to the dashboard of admin.

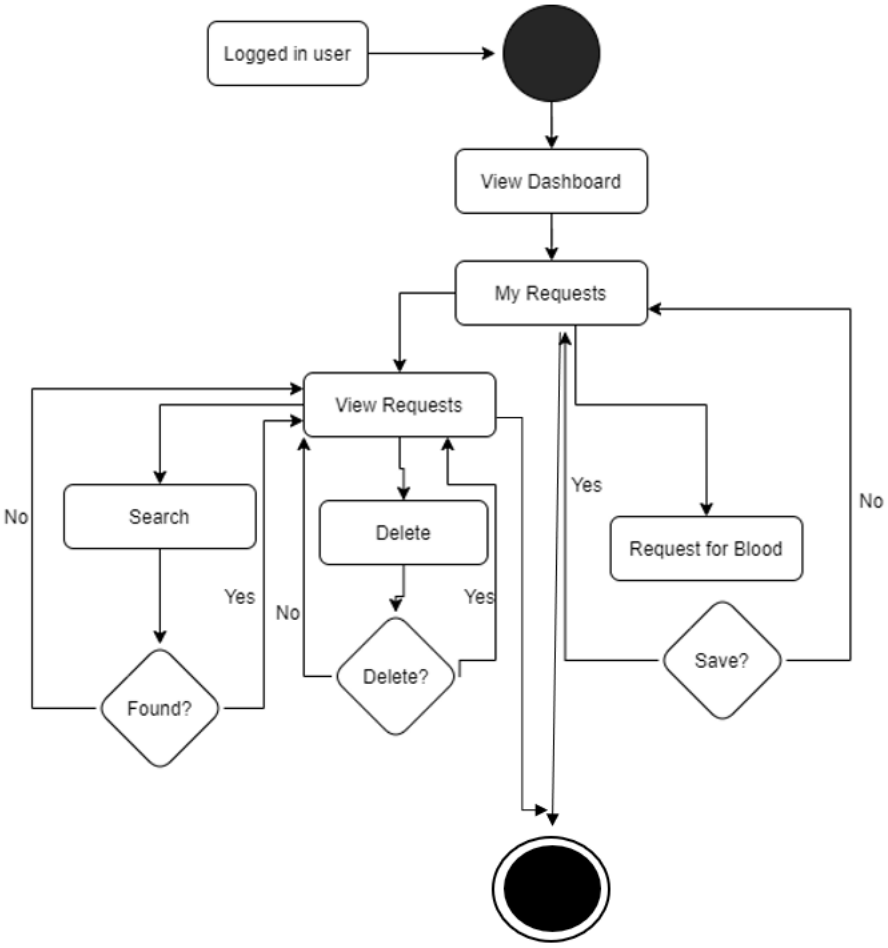

Figure 3.2.2: Activity diagram (User-Blood Request)

This activity represents the new blood request of a user and view old request and the find option.

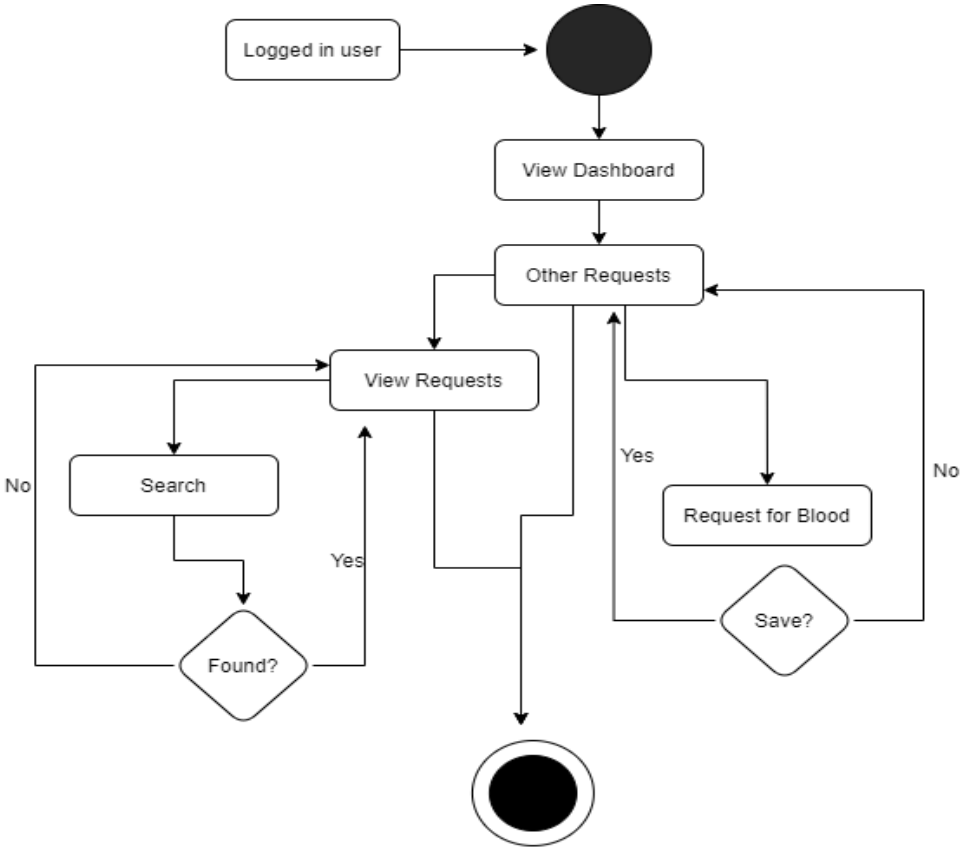

Figure 3.2.3: Activity diagram (Other's blood requests)

Others users request shows all the data of requested bloods of other users along with new request creation and search action.

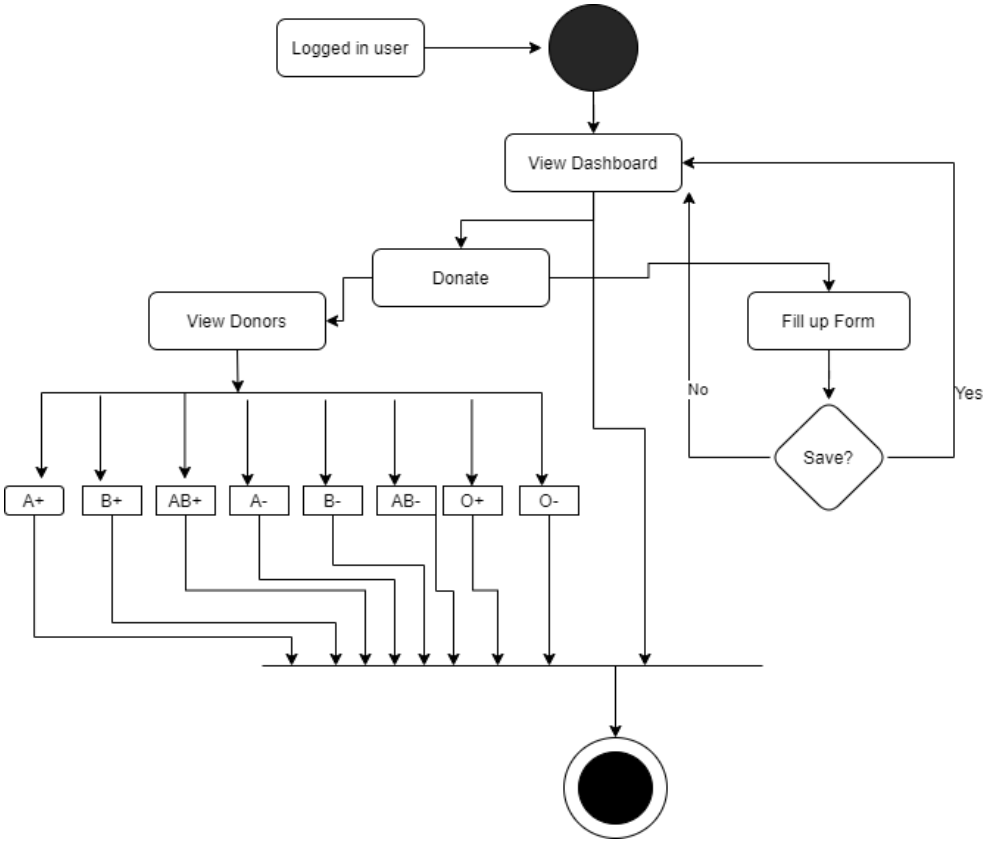

Figure 3.2.4: Activity diagram (Donate-blood)

Donate blood diagram shows the flow of blood donation form filling up system and all the other members who are available to donate bloods and sort by blood groups,

A search button works to find out the result for the desired key-word.

3.3 Sequence diagram:

Sequence diagrams are a familiar powerful modeling solution in UML because they precisely focus on lifelines or the manners and things that live simultaneously and the messages transferred between them to perform a function before the lifeline ends. Along with our UML diagramming tool, use this diagram to discover everything there is to know about sequence diagrams in UML.

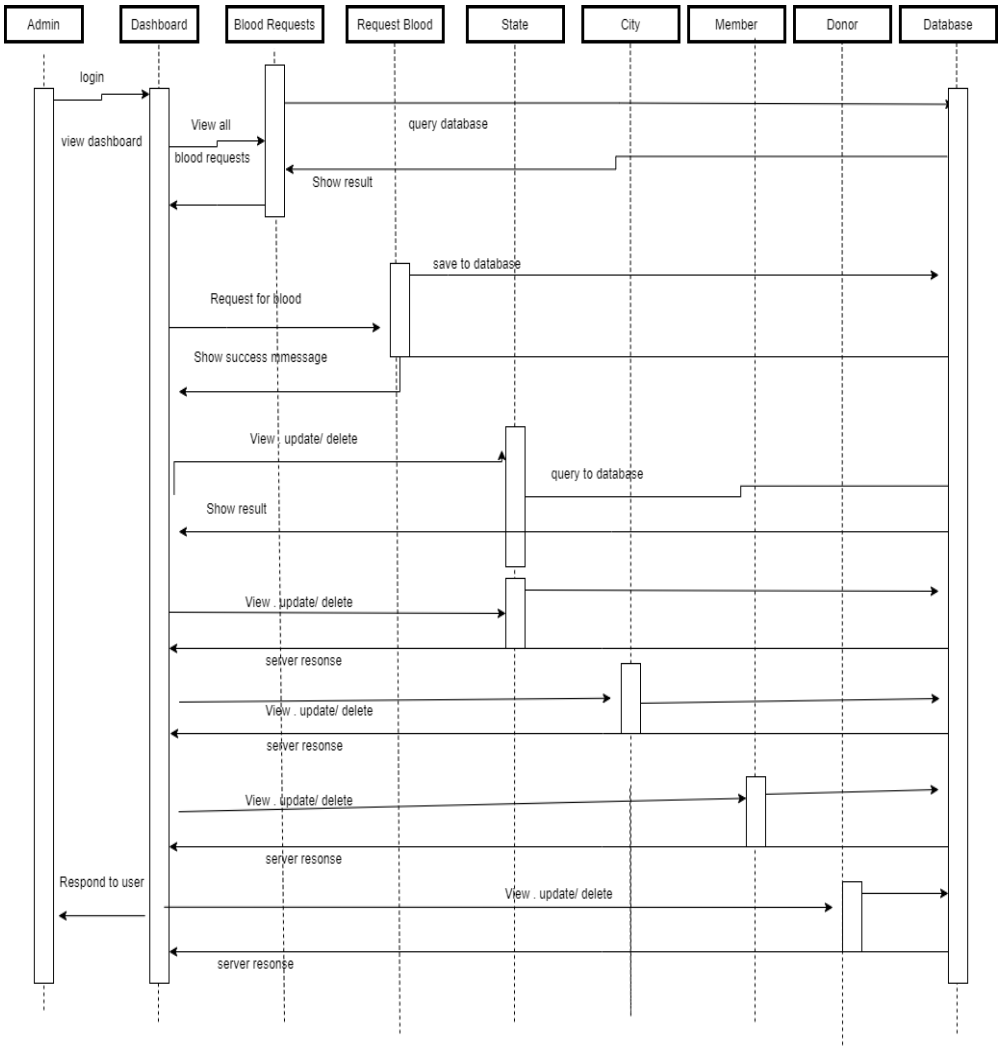

Figure3.3.1: Admin sequence diagram

This diagram shows the sequence of admin workings flow.

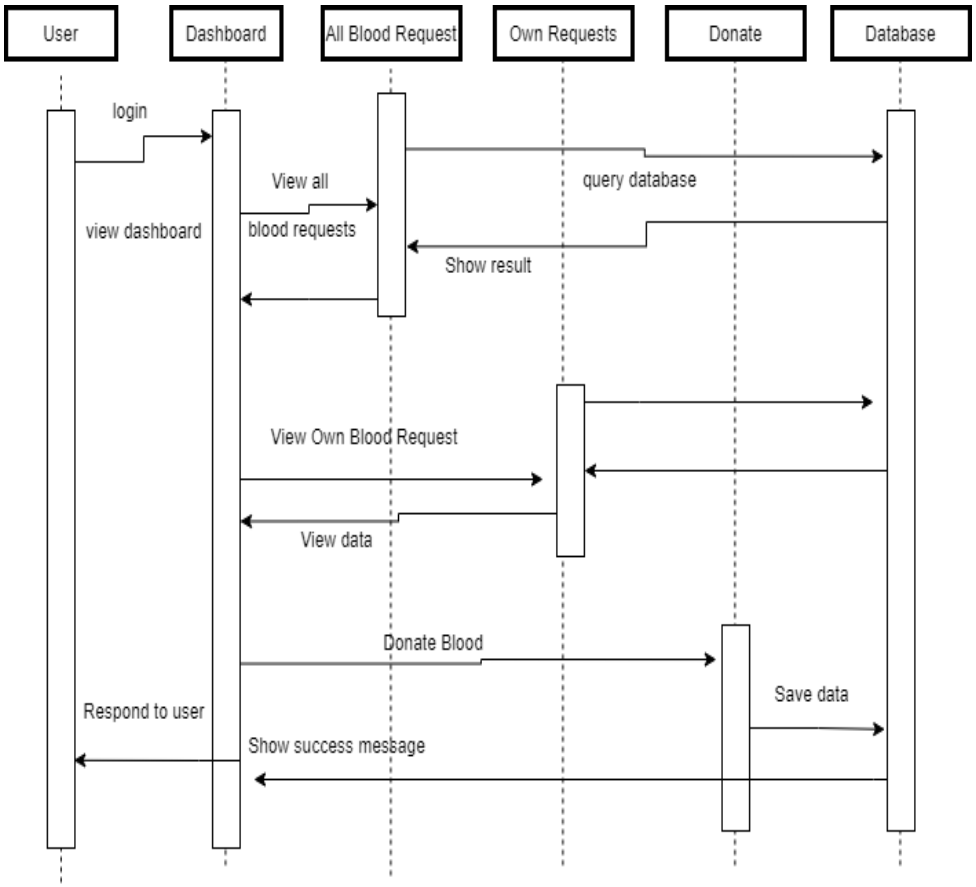

Figure3.3.2: User sequence diagram

This diagram shows the work sequence of the user.

3.4 ER Diagram:

An Entity Relationship Diagram (ERD) is a visible illustration of various entities within a system and how they compare to each other. The entity-relationship diagram represents the entity of the system.

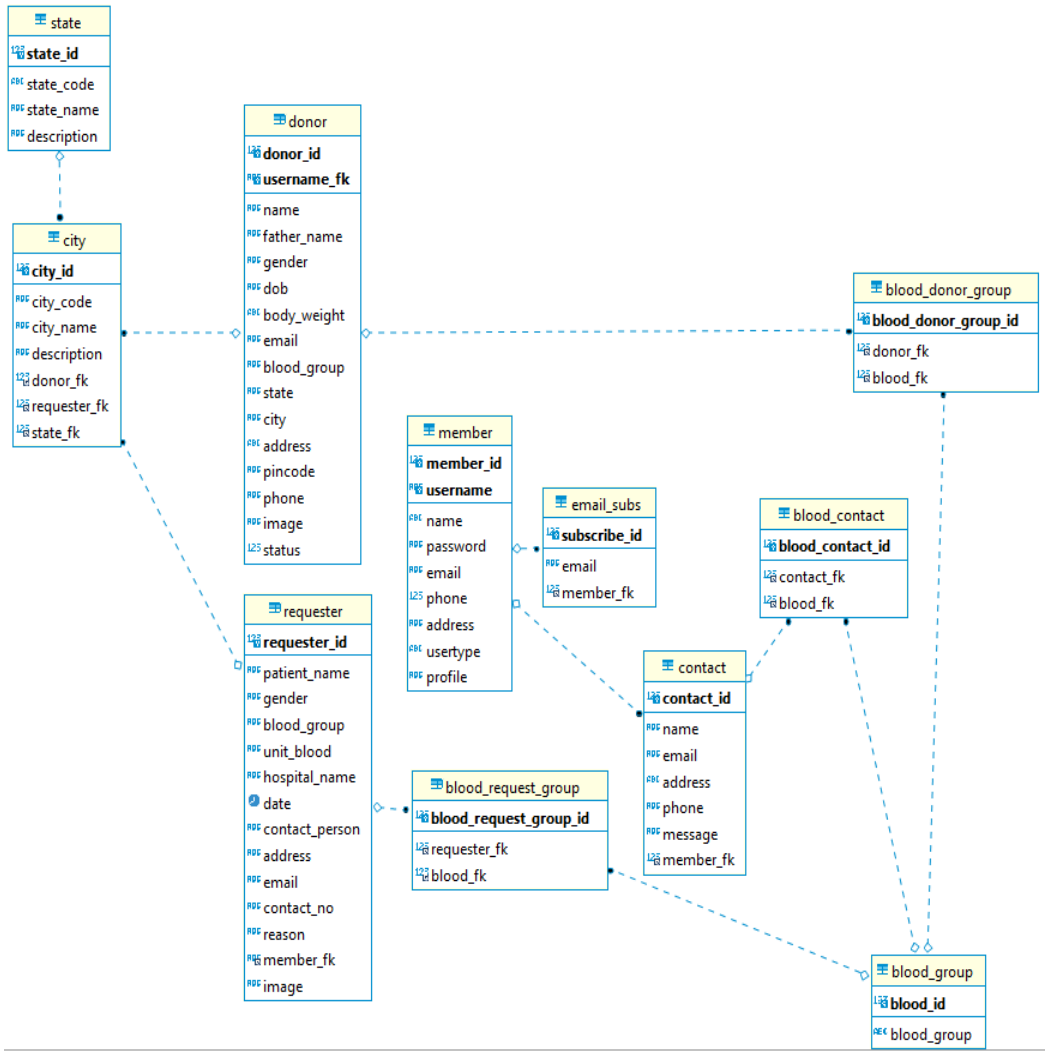

Figure 3.4.1: ER Diagram

3.5 Class Diagram:

Class diagrams are one of the common helpful sorts of diagrams to precisely map the construction of a particular system by modeling classes, attributes, functions, and relations between the objects or classes.

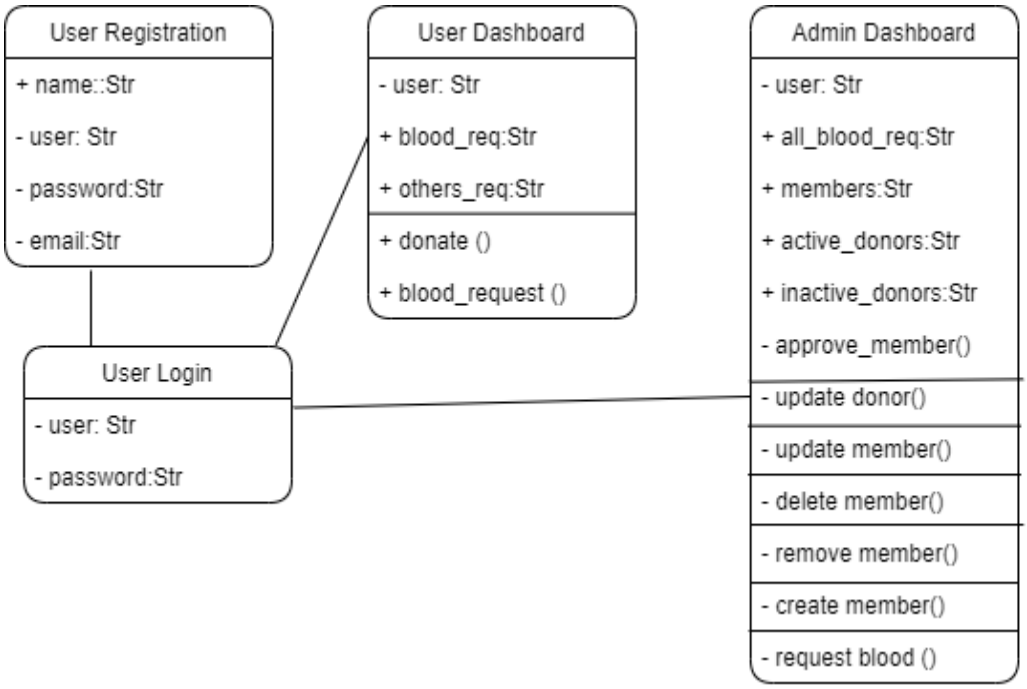

Figure 3.5.1: Class diagram

Chapter IV
SYSTEM DESIGN SPECIFICATION

Chapter 4:

Development Tool & Technology

4.1 User Interface Technology

Tools and technologies are used in this project are stated below:

HTML is used for the base design and browser show. CSS is used for basic designs, colors, fonts, and animations. JavaScript supported to make better functionalities.

Language: PHP is used to develop this project. The reason for using PHP is it's free and easy to use, developer-friendly. Maximum browsers support the language, including Chrome, Firefox, Brave, Edge, Internet Explorer.

Database: MySQL database is practiced to create this project. MySQL is easy to use, user-friendly, fast, and reliable.

Chapter V

USER MANUAL

Chapter 5 :

5.1 User Interface

5.1.1 Home Page: Here is the home page of Blood Donor project. When a user hit the URL for it then this page is displayed first to him.

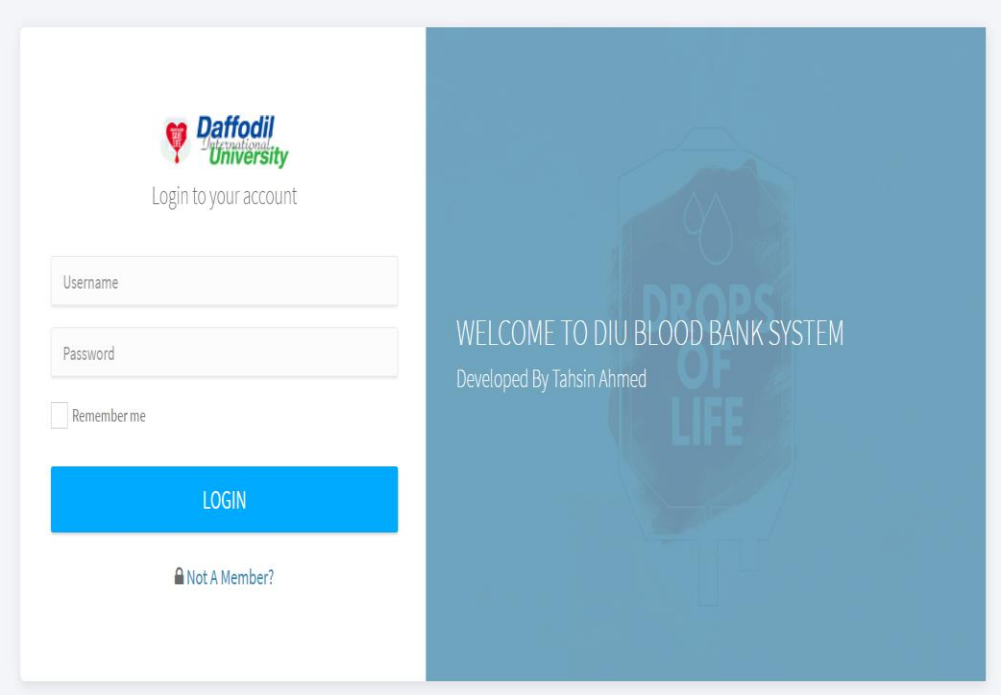

Figure 5.1.1: home page

5.1.2 Registration page: Here a user can register for donating blood or for requesting blood.

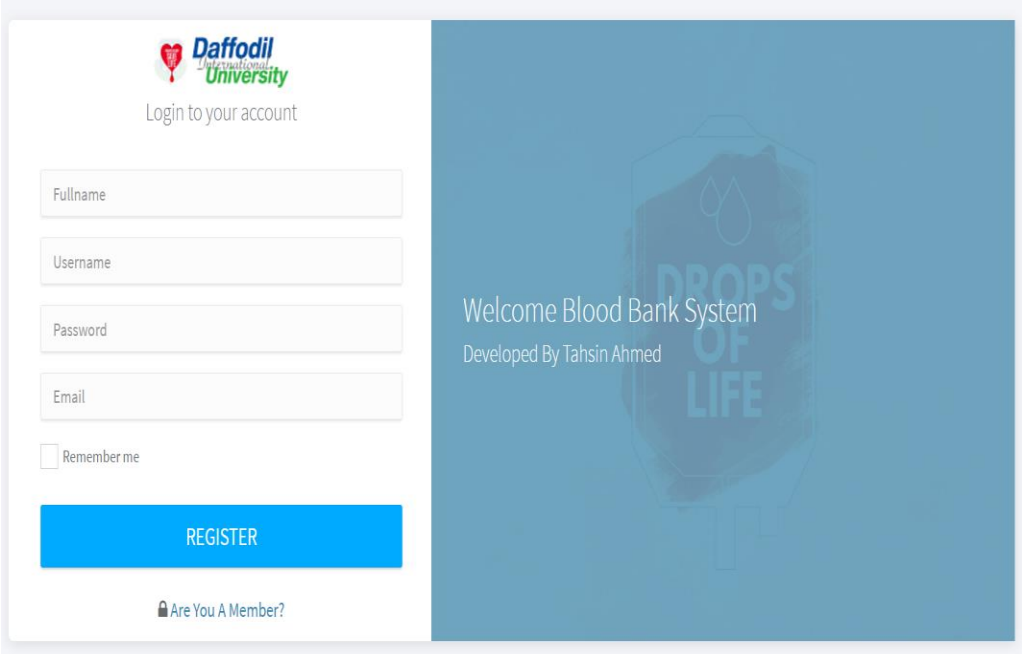

Figure 5.1.2: User Registration

5.1.3 Dashboard: When a user logs in, they enters into the dashboard first.

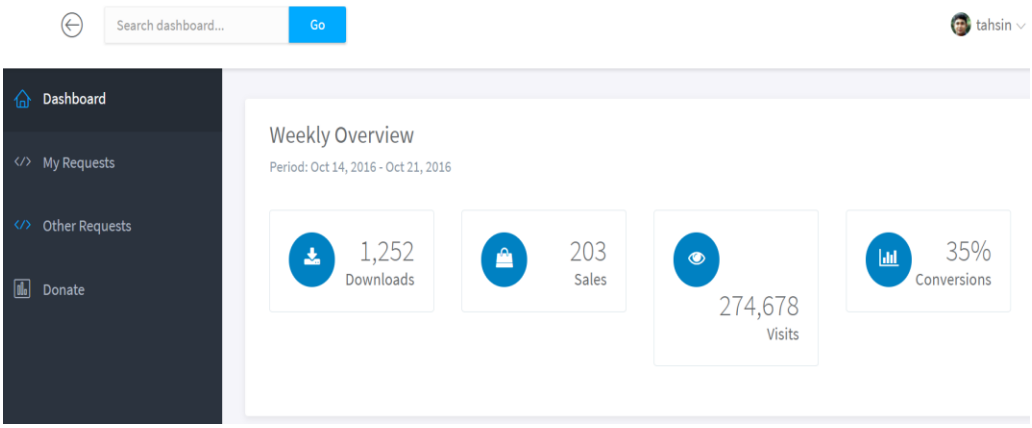

Figure 5.1.3: User Dashboard

5.1.4 My Requests: Here user can view blood requests created by him and can search and manage requests.

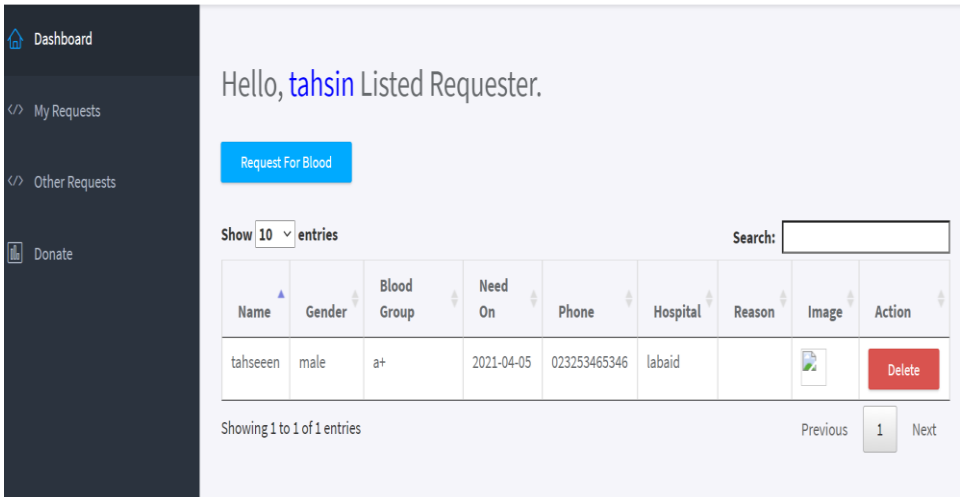

Figure 5.1.4: Own blood requests

5.1.5 Others Requests: User can see other users requests here.

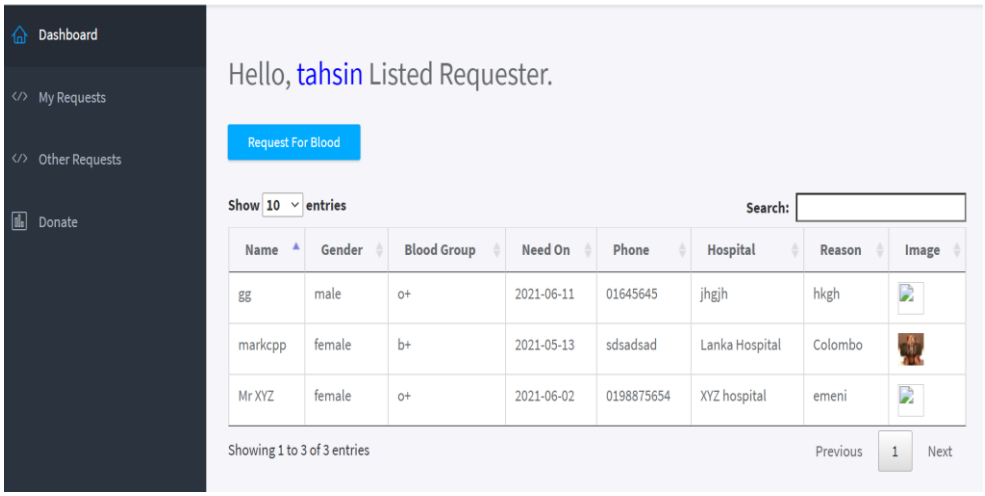

Figure 5.1.5: See other users blood requests.

5.1.6 Donate: Users can view all donors here and search by blood groups.

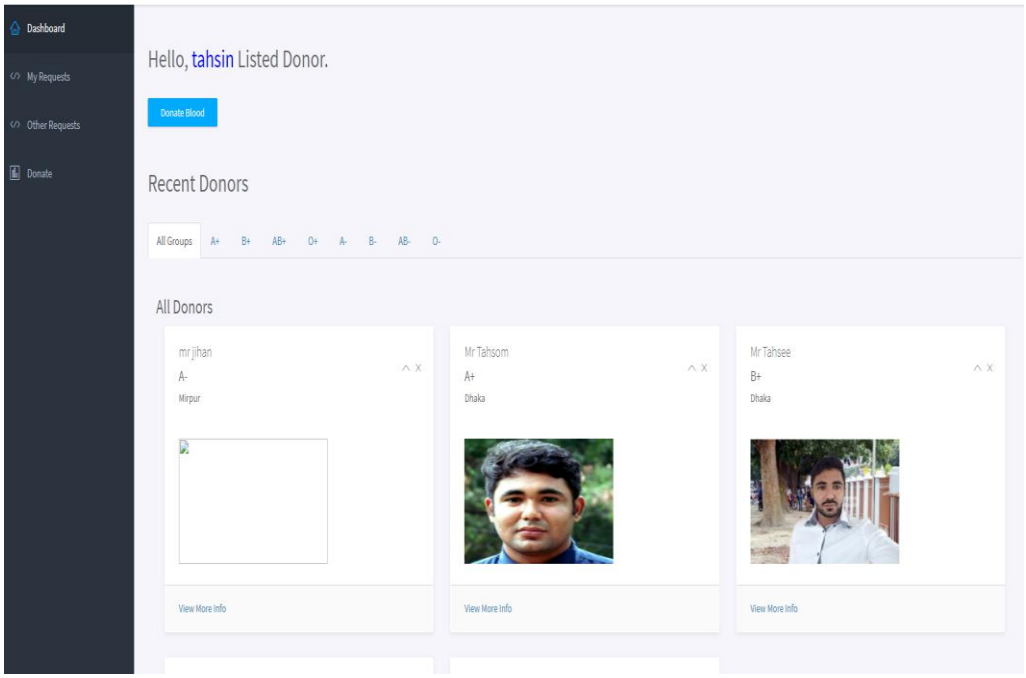

Figure 5.1.6: Donor page

5.1.7 Donate request: Users can register for blood donation here.

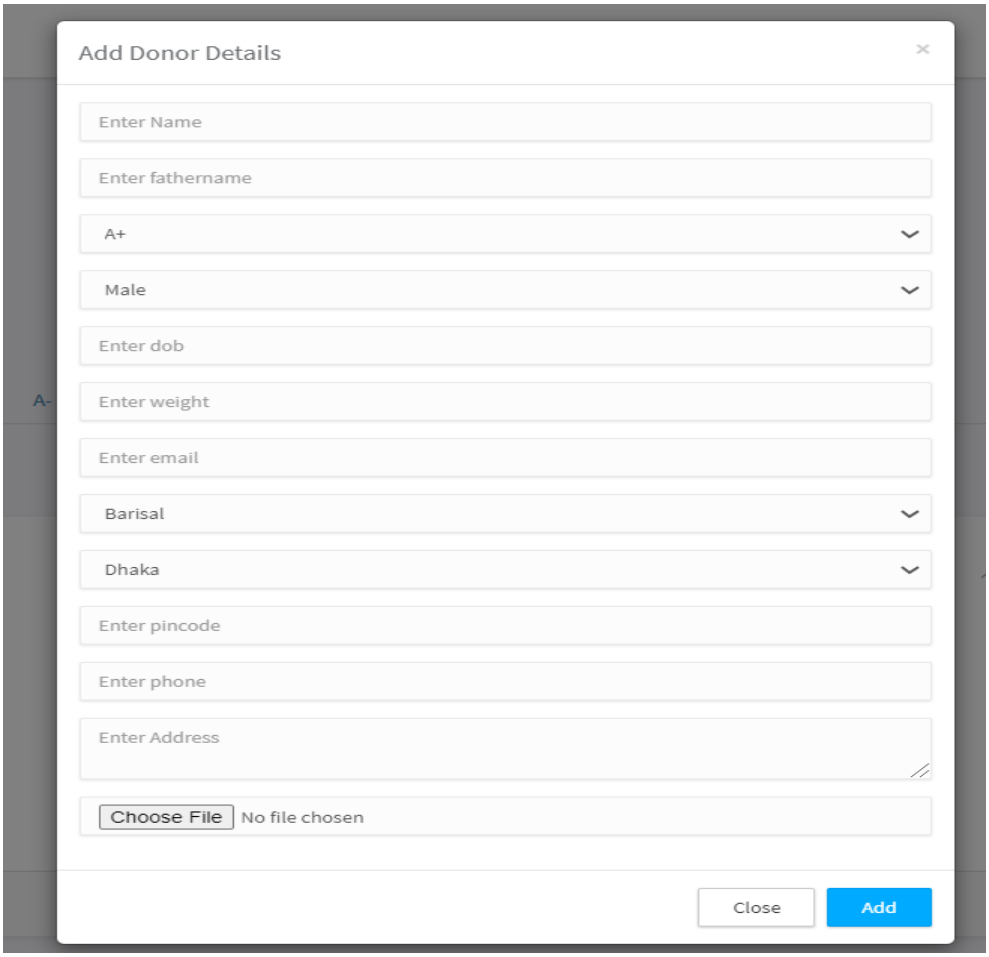

Figure 5.1.7: Donor registration

5.1.8 Logout: Users can log out from here.

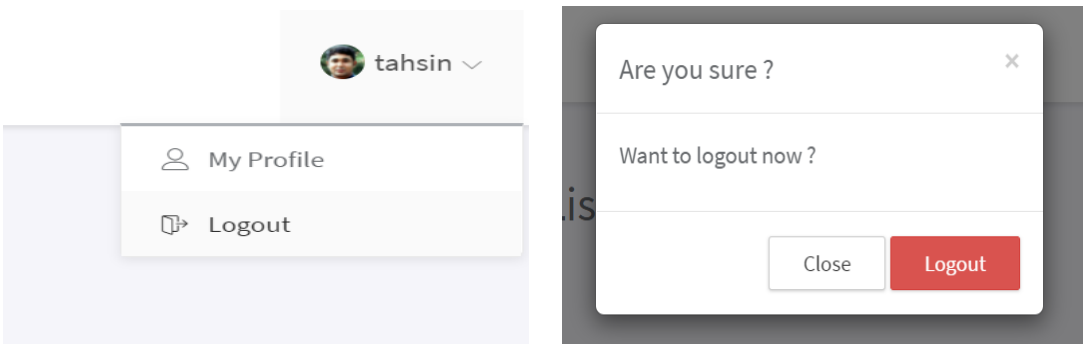

Figure 5.1.8: User logout

5.1.9 Manage Regions: This option is used to add edit update Regions by admin here.

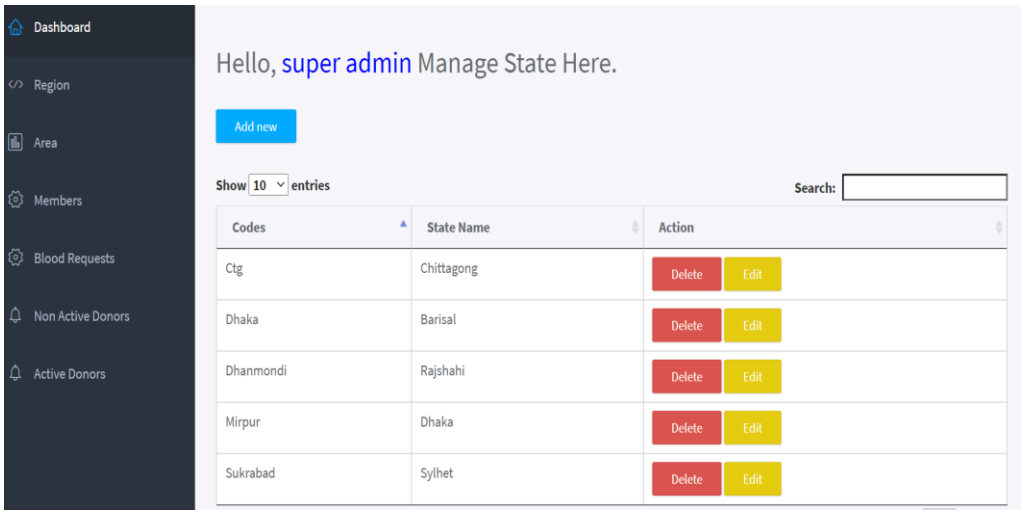

Figure 5.1.9: Manage Region

5.1.10 Manager Area: Areas can be viewed and managed by Admin here.

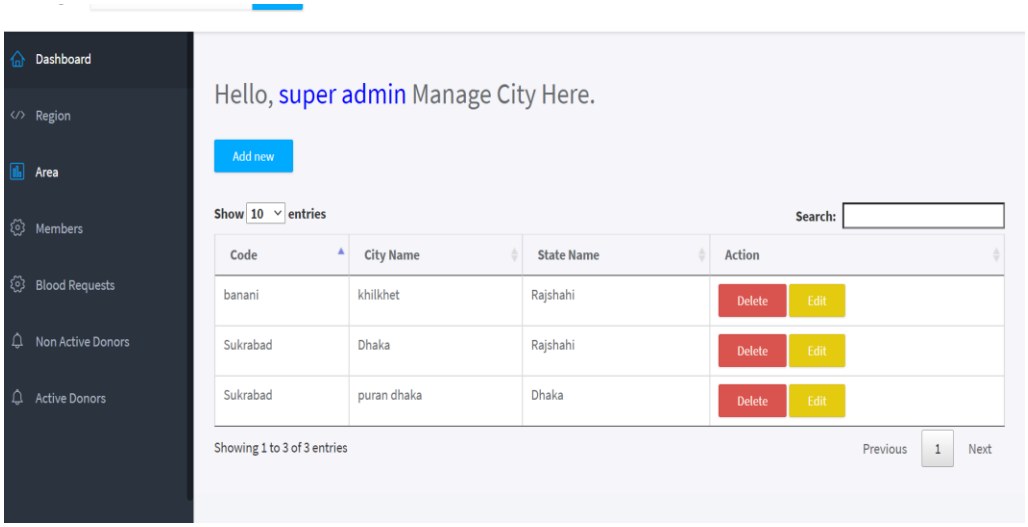

Figure 5.1.10: Manager Area

5.1.11 Manager Members: Members can be managed from here by admin.

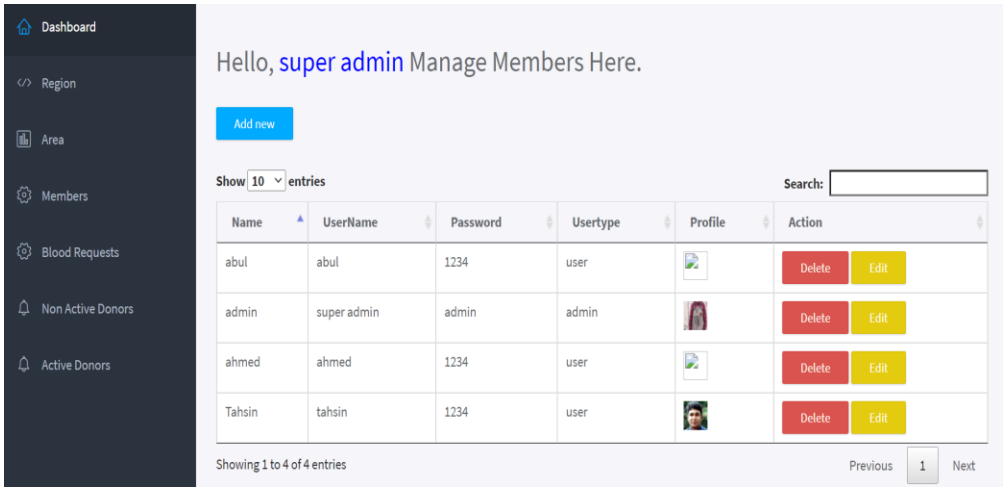

Figure 5.1.11: Manage members

5.1.12 Manager Blood Requests: Admin can manage blood requests here.

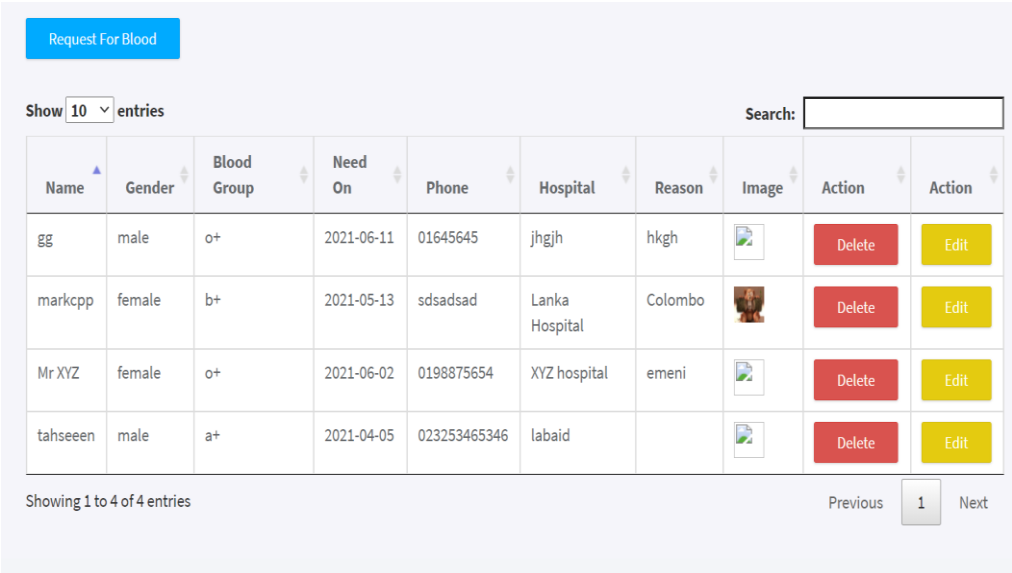

Figure 5.1.12: Manage bloods

5.1.13 Manager Non Active Members: Admin can make activate of pending users verifying their identity.

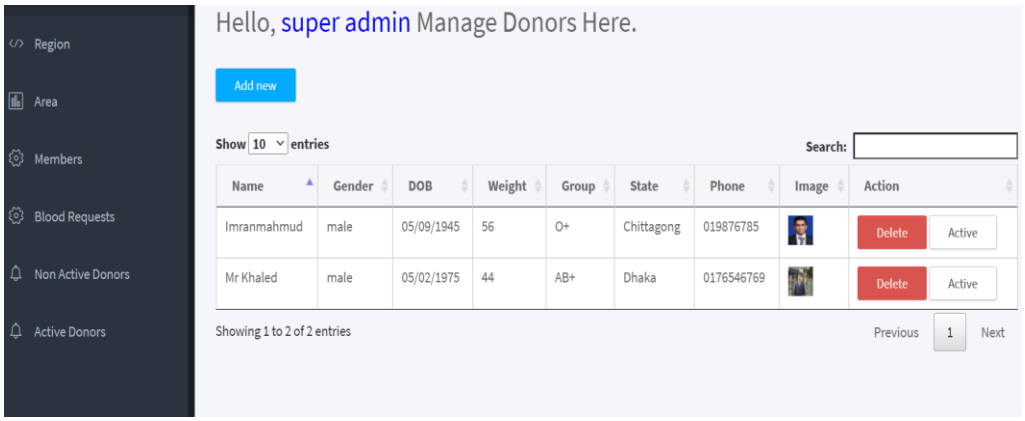

Figure 5.1.13: Member approval

5.1.14 Active Donors: Admin can manage active blood donors here.

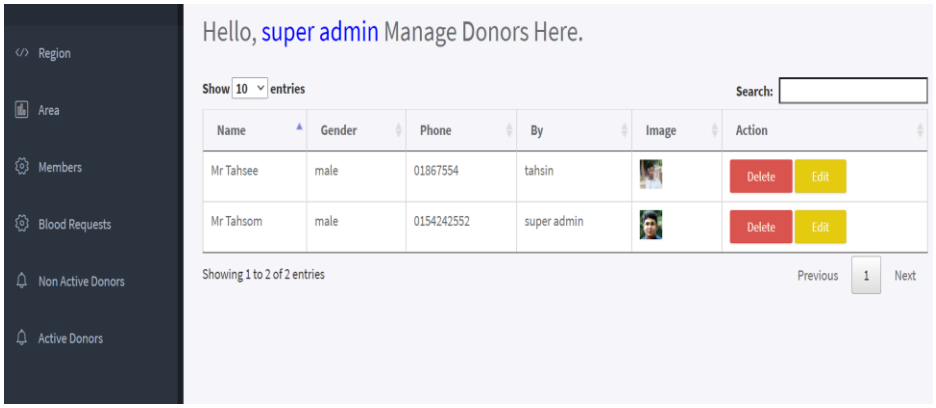

Figure 5.1.14: Active donors

5.1.15 Admin Logout: Admin can log out from the system by clicking the logout button from top right corner of profile.

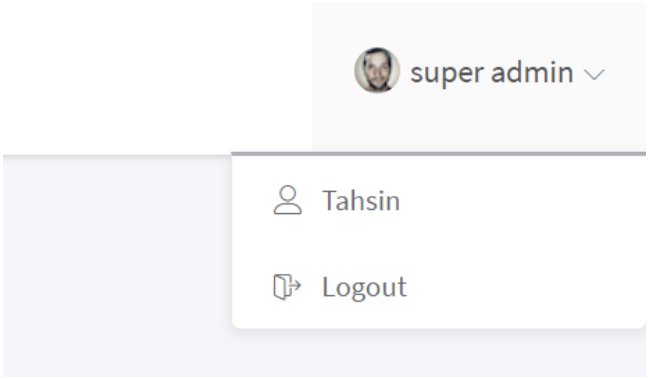

Figure 5.1.21: Admin logout

Chapter VI
TESTING

Chapter 6:

6 System Testing

6.1 System Testing

The testing process evaluates the functionality of a software application to get the specifications whether it satisfies the requirement of user and detects the defects in the system.

Importance of system testing:

● System testing is the first level of testing for the entire application.

● We need to see what is happening and the expected outcome as well as actual input.

● When a project does not have a test plan, this means that system produced is low quality. And it's not acceptable.

● The system will be tested with data to understand whether it can manage suitably or not from simple to severe form to understand the system capacity.

Test Case:

Test case #1			**Case name:** New User Creation	
System: Blood Bank			**Subsystem:** N/A	
Designed by: Tahsin			**Design date:** 18-May-2021	
Executed by:			**Executed date:**	
Short Desc: Target to create new center				
Precondition: Name, email and password				
Step:	**Action**	**Response**	**Pass/ fail**	**Comment**
1	All data is in case	Application send data to database	Pass	
Post Condition: N/A				
Fail Case: If fails, try again				

Test case #2			**Case name:** Login	
System: Blood Bank			**Subsystem:** N/A	
Designed by: Tahsin			**Design date:** 18-May-2021	
Executed by:			**Executed date:**	
Short Desc: Target to login with user id and password				
Precondition: Registration				
Step:	**Action**	**Response**	**Pass/ fail**	**Comment**

1	All data is in case	Application show successful dashboard	Pass	
Post Condition: N/A				
Fail Case: System will show error				

Test case #3		**Case name:** Create Blood Request		
System: Community Center Manager		**Subsystem:** N/A		
Designed by: Tahsin		**Design date:** 21-May-2021		
Executed by:		**Executed date:**		
Short Desc: Target to create new blood request				
Precondition: User Login				
Step:	**Action**	**Response**	**Pass/ fail**	**Comment**
1	All data is in case	Application created new blood request	Pass	
Post Condition: N/A				
Fail Case: System will show error				

Test case #4		**Case name:** Donate		
System: Blood Bank		**Subsystem:** N/A		
Designed by: Tahsin		**Design date:** 23-may-2021		
Executed by:		**Executed date:**		
Short Desc: Target to register for donate blood				
Precondition: User Register and Login				
Step:	**Action**	**Response**	**Pass/ fail**	**Comment**
1	All data is in case	Donate form created show	Pass	
Post Condition: N/A				
Fail Case: System will show error				

Test case #5	**Case name:** Search Blood
System: Blood Bank	**Subsystem:** N/A

Designed by: Tahsin			**Design date:** 25-May-2021	
Executed by:			**Executed date:**	
Short Desc: Target to search blood				
Precondition: Login first.				
Step:	**Action**	**Response**	**Pass/ fail**	**Comment**
1	All data is in case	Show data	Pass	
Post Condition: Show searched data in view.				
Fail Case: System will show error				

Chapter VII
CONCLUSION

Chapter 7:

Project Summary

7.1 Limitations

- This system is not prepared absolutely fit for android/ iOS devices.

7.2 Obstacle & Achievements

Obstacle:

- Collecting requirements

Achievements:

- Learnt a new language
- Successfully build a production level project

7.3 Future Work

Though the system was contracted as fine the future work will include some major changes, as-.

- Plasma donation system will be addes due to corona like situation
- A live chatting system will be added
- Mobile application will be built

References:

1. Adarsh, N., Arpitha, J., Ali, M., Charan, N. and Mahendrakar, P., 2014. Effective blood bank management based on RFID in real time systems. 2014 International Conference on Embedded Systems (ICES),.
2. Chaudhari, S., Walekar, S., Ruparel, K. and Pandagale, V., 2018. A Secure Cloud Computing Based Framework for the Blood bank. *2018 International Conference on Smart City and Emerging Technology (ICSCET)*,.
3. Hegedus, H., Szasz, K., Simon, K., Fazakas, T., Mihaly, A. and Nagy, K., 2019. Blood Notes: Software System for Promoting and Facilitating Blood Donation. *2019 IEEE 17th International Symposium on Intelligent Systems and Informatics (SISY)*,.
4. Arif, M., Sreevas, S., Nafseer, K. and Rahul, R., 2021. *Automated online Blood bank database*.
5. PDF4PRO. 2021. *ISSN 2395-1621 Smart Online Blood Bank … / issn-2395-1621-smart-online-blood-bank.pdf / PDF4PRO*. [online] Available at: <https://pdf4pro.com/view/issn-2395-1621-smart-online-blood-bank-2a8661.html> [Accessed 1 June 2021].
6. V, P. and Ahammed, D., 2021. *Design of SMS based Automated Blood Bank using Embedded System*. [online] Ijert.org. Available at: <https://www.ijert.org/design-of-sms-based-automated-blood-bank-using-embedded-system> [Accessed 1 June 2021].
7. Baş, S., Carello, G., Lanzarone, E., Ocak, Z. and Yalçındağ, S., 2021. *Management of Blood Donation System: Literature Review and Research Perspectives*.