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A Web Application on Blood Bank Management System

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Independent University, Bangladesh

An Undergraduate Internship on a Web Application on Blood Bank Management System

By

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Summer, 2022

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September 14, 2022

Dissertation submitted in partial fulfillment for the degree of Bachelor of Science in Computer Science

Department of Computer Science & Engineering

Independent University, Bangladesh

Attestation

This is to certify that the report titled **"An Undergraduate Internship on a Web Application on Blood Bank Management System"** is completed by me, **Nafisa Nawal (1810064)**, submitted in partial fulfillment of the requirement for the Degree of Computer Science and Engineering from Independent University, Bangladesh (IUB). It has been completed under the guidance of **Mr. Bijoy Rahman Arif** sir (Supervisor). I also make sure that all my work is the first one I learned during my Internship. All sources used for this project and report are duly accepted into it.

Nafisa Nawal 25.09.2022

Signature Date

Write Your Name Here

Nafisa Nawal

Name

Acknowledgement

First of all, I'd wish to give thanks to Almighty Allah (SWT), for his kindness in completing my internship report on time. I would like to extend my thanks to the Faculty of Computer Science and Engineering department to maintain internship the graduation program curriculum once give me a wide range of industry-oriented activities and the field of work in my interest. I'd like to say a special and heartfelt because of my Supervisor, Mr. Bijoy Rahman Arif, Lecturer, Department of Computer Science and Engineering, Independent University, Bangladesh, who inspired me on this progress, guidance, useful instructions, encouraging suggestions, and thoughtful recommendation on time follow this application and update this report. Thanks once more to my technical manager Md. Mukhlesur Rahman sir, Lead Software Engineer, atB Co. Ltd from the core of my heart for his good support, guidance, uplifting, guiding, instructing, and advising, and inspiring me to try to scan nicely at atB Co. Ltd. I feel proud and satisfied that I have been closely monitored by the Web Application Development team and received direct advice from my seniors. Here, daily reportage and psychological and skilled support enhances my knowledge in this internship life.

Letter of Transmittal

Mr. Bjioy Rahman Arif

Lecturer

Department of Computer Science and Engineering

School of Engineering and Computer Science

Independent University, Bangladesh

Subject: **Submission of Internship Report for the completion of Graduation.**

Dear Sir,

I am submitting my Reading report, which is part of the Bachelor Program Computer Science and Engineering curriculum. It is a great achievement to work under it your effective monitoring. The report is based on, “atB Co. Ltd Internship”. I had the opportunity to work at atB Co. Ltd for three months, under surveillance of Mr. Takahashi Rei, Chief Operation Officer, atB Co. Ltd. This training has given me both academic and operational exposure. The internship has given me the opportunity to improve the network and business environment. I tried to make this report as informative as possible with the information I have gained during my internship. In order to prepare a formal internship report, I follow the guidelines and explain the required fields in sufficient details, however, I sincerely believe that this report will serve the purpose of my learning program.

I will be very responsible if you are kind enough to receive this report and provide yours important judgment. It would be my great pleasure if you found this report helpful too information to have a clear view of the matter.

Sincerely Yours,

Nafisa Nawal

ID: 1810064

Department of Computer Science and Engineering

Independent University, Bangladesh

Evaluation Committee

Bijoy Rahman Arif

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September 25, 2022

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Dr. Mahady Hasan
Head, Department of CSE
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Abstract

The definition of an internship is the acquisition of practical knowledge for diverse businesses. It helps to establish a link between information from theory and information from practice. It is crucial because a student has never before had the opportunity to act on information from other groups. Once granted, I Through my internship at atB Co. Ltd, I had the chance to work and learn alongside a group of engineers. This project's goal was to build a web application using the Laravel framework which allowed the framework to function in real-time. Every project I worked on during my study period is covered in this report. I had to finish my study sessions before beginning any projects, and after learning my lesson this time, the majority of my work on a web application.

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Chapter 1

Introduction

An internship is a professional learning experience. Most are practical work with real-world scenarios related to the student's major (intern), or professional interest. Internships also provide relevant opportunities for students. Theoretical knowledge in harsh real-world environments through internships. It will give enough skills to get a job in this field in the future. It also gives the opportunity to observe, learn and practice under the guidance of an expert director of this area. As a student at the Independent University of Bangladesh (IUB). For that, you need to do an internship in a reputable company in a respectable field. Get a job in the same or another field in the future. I worked for about 3 months.

1.1 Overview

As an intern, I faced some challenges in addition to learning a new programming language. For example, time keeping for all tasks and reporting to the Supervisor. Started my internship at atB Co. Ltd as Junior Web Developer on 1st June 2022.

An engineer, he was given the task of creating a web application called "Blood Bank Management System".

This application is unique in that it only uses email to create an account with password then user can use the application.

1.2 Objectives

Project objectives are what we decide to reap by the cease of our undertaking. The goals of a assignment are particular, measurable and will meet time, finances and most importantly meet the customer’s necessities. The principle goals of this software are described beneath:

Signing Up with email: The user can get registered by signing up with email & confirming a password.

User Dashboard: After successful registration user can get access to the dashboard. Blood Request Interface: In the main dashboard there is a option for make a request where there are fields for selecting date, blood group & reason the click to the post button.

Donate Blood Interface: Clicking donate blood option there are two options active blood request & donation history.

1.3 Scopes

In this web application user will get the access after successful verification by the admin panel. It means that user only get permission to use this application after sign in with proper information & having verification of these information.

All the contents of the application will be loaded dynamically with the real data inputs in the system.User information will be stored after verification (i.e. name, email, blood group, NID number etc) in the system & inputing correct password user can see there saved information.

Without logging out completely from the system no user can log in it at the same time with different id & password.

Chapter 2

Literature Review

2.1 Relation with Undergraduate Studies

A Literature Review is a summary of a student's research paper, largely based on the same paper. About that, includes many types of books, papers, articles, etc. So it basically describes how life data looks like today. This may be useful for ongoing ventures on this comparable topic. Similarity to basic learning which has been done in undergraduate education.

Database Management System (CSE303): There are so many information in this system had to store & had to do pre planned by creating BPMN ERD diagram which were being learned in CSE 303. The SQL query & normalization to make the database easier to understand also being learned in this course.

Object Oriented Programming (CSE213): Object oriented programming language mainly introduces with class, inheritance, interference, polymorphism. In this web application there are users & according to the activity there are different way of methods for different purpose of users which are being taught in this course.

Web Application (CSE309): The Blood Bank Management System is a web application so in this project CSE309 course's learning helped a lot. HTML, CSS Bootstrap all of this styling language & framework basics were taught in CSE309 which help to do the designing of the web application.

2.2 Related Works

This web application is developed by Laravel framework with PHP which is popular & also a demanding technology nowadays. As blood donation is happened in our country, annually so that other similar work or similar version is hard to find out.

But there are some websites in our country who provide the information of availability of blood or the details of the centre or hospital where they will get the services.

1. Bangladesh Red Crescent Society
2. DonorBD

Chapter 3

Project Management & Financing

Work Breakdown Structure (WBS) is a process to breakdown a project into small parts with maintaining the project structure sequentially. The WBS includes a view of all scope, risks, communication points, obligations, costs, and assurances that go beyond delivering value. By combining mindfulness and collaboration the perfect tool for your team. In this case, WBS was used for way to the up.

3.1 Work breakdown Structure

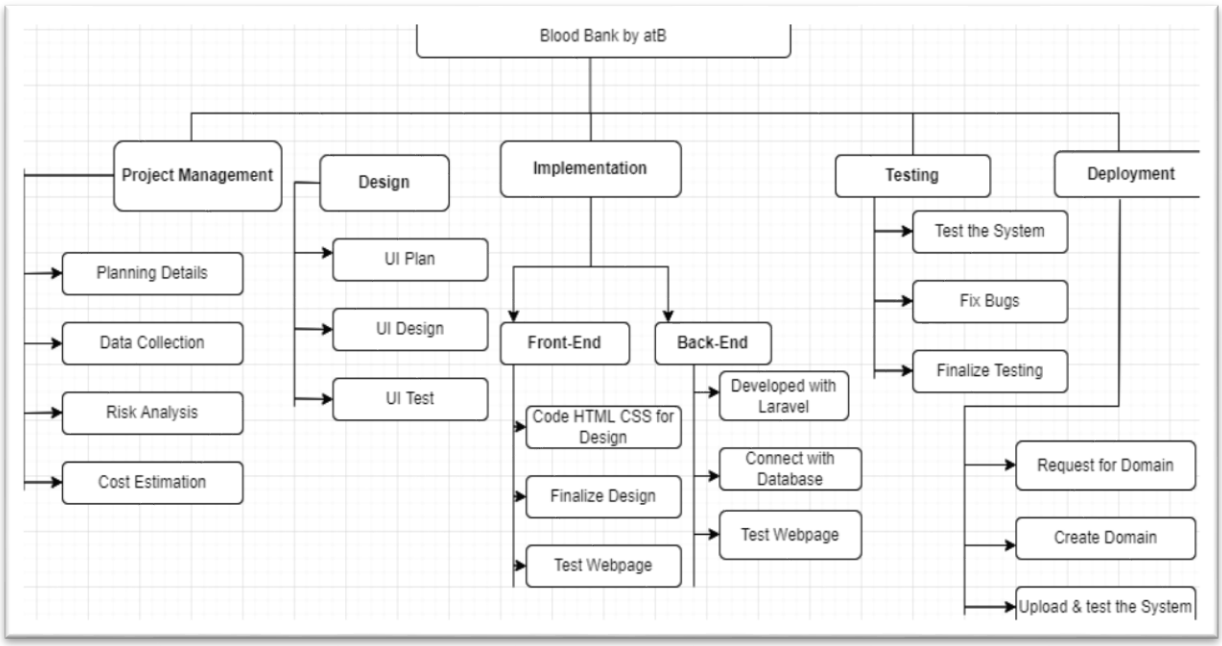

Fig 3.1: Work Breakdown Structure

3.2 Activity wise Time Distribution

A process/activity is required to complete the project within the estimated time. This distribution helps you divide and organize all your tasks.

Section to make it work more efficiently. In addition, people can work more flexibly. It's easier if the whole project is divided into subgroups. The most important challenges in

designing good application is time management. Therefore the content needs to be addressed and progress should be based on that context with better time management reduce the time required to complete project-related tasks. The critical path method of this project is given below:

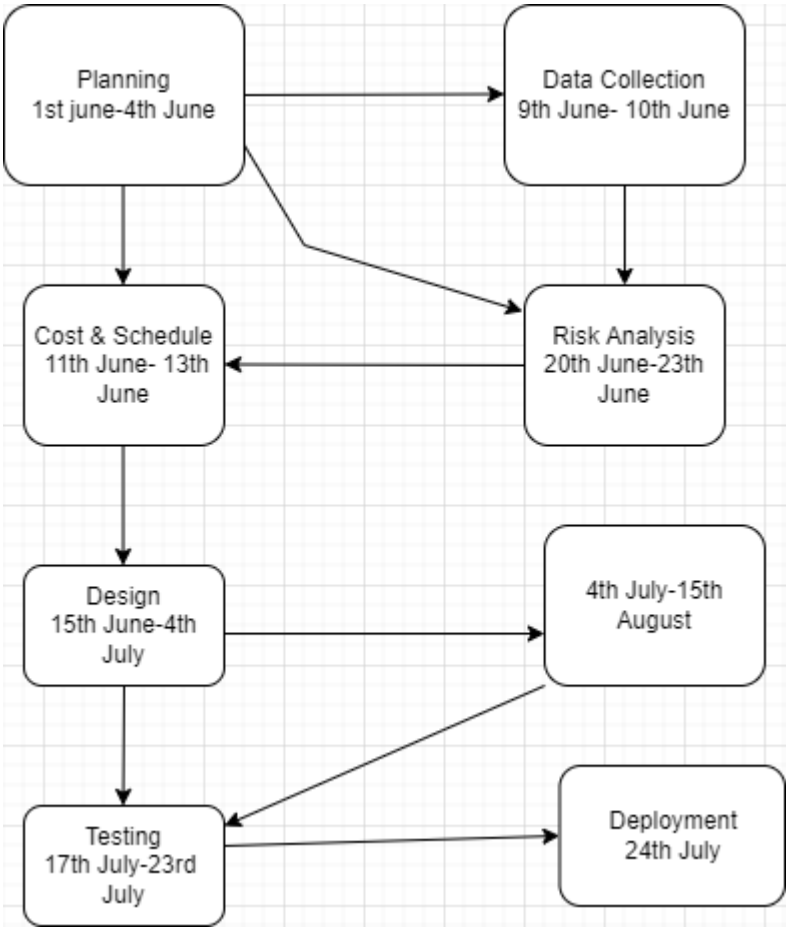

Fig 3.2: Critical path method for "Blood Bank Management System"

Here you can see what kind of whole project you need 4 days to plan.

A project is the language and framework (if any) needed to build it and how. This project consists of relatively little data, so two days should be enough. The cost plan was picked up by a supervisor within 2 days. Front end design took 18 days. The most extensive work is implementation. All design and backend required.

Implemented in a framework. In this case Laravel was used. Finally, after implementing testing begins and took 7 days to test and completed the entire application for release. Project is deployed by 31st august 2022.

3.3 Gantt Chart

A Gantt chart is a project management tool that helps you plan and organize. Any size project, but especially useful for creating complex projects. Project management time and tasks are converted into a horizontal bar chart showing start and time

Finish dates, dependencies, plans, and finish dates (including most work)

Completed in each category and who owns the work? This keeps the activity on track. The range will change if we have a large group and more participants.

Gantt charts are used for:

- It helps to divide the whole project into smaller tasks.
- Know when a project starts and ends.
- Monitor and report progress.
- View milestones and important events.
- How long the task will take.

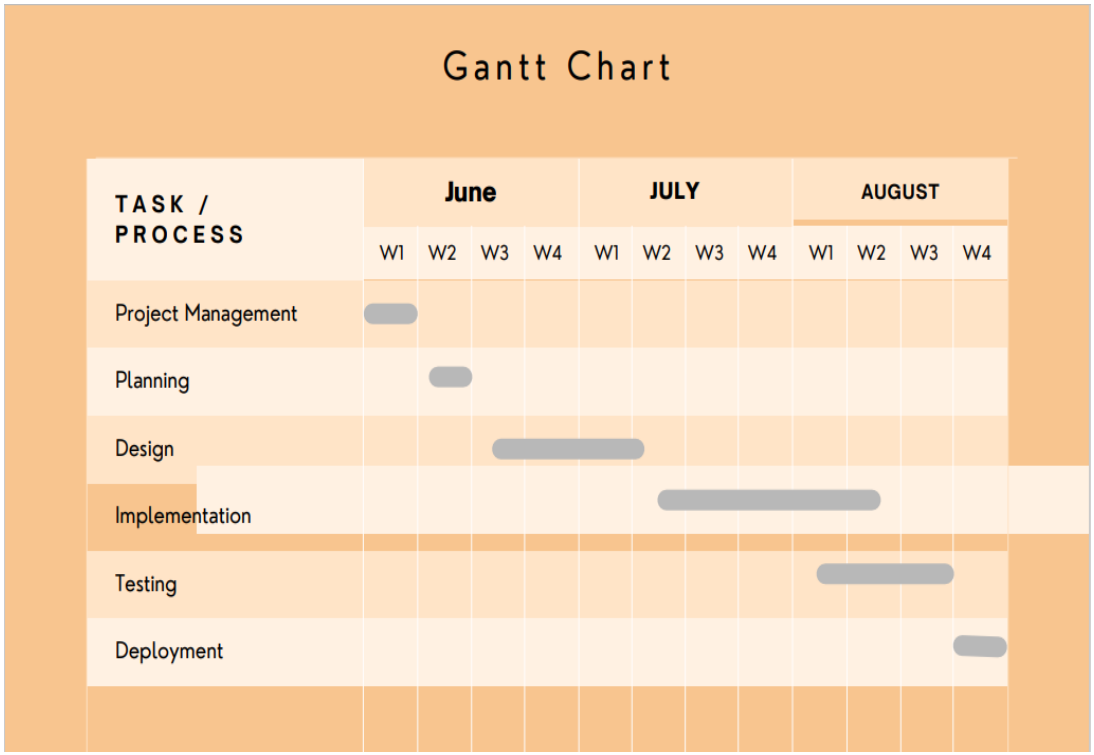

Fig 3.3: Gantt Chart

In section 3.2 we saw the time distribution of the project. In the following Gantt chart above, you can clearly see that implementation and design took most of the time of the entire project. In summary, it is clear that most of the time in the construction of the entire project was taken up by the planning and implementation department and tested after each change.

This implementation was a long process and took 50% of the work for the entire project. It also took 41 days or about 325 man-hours to complete this task.

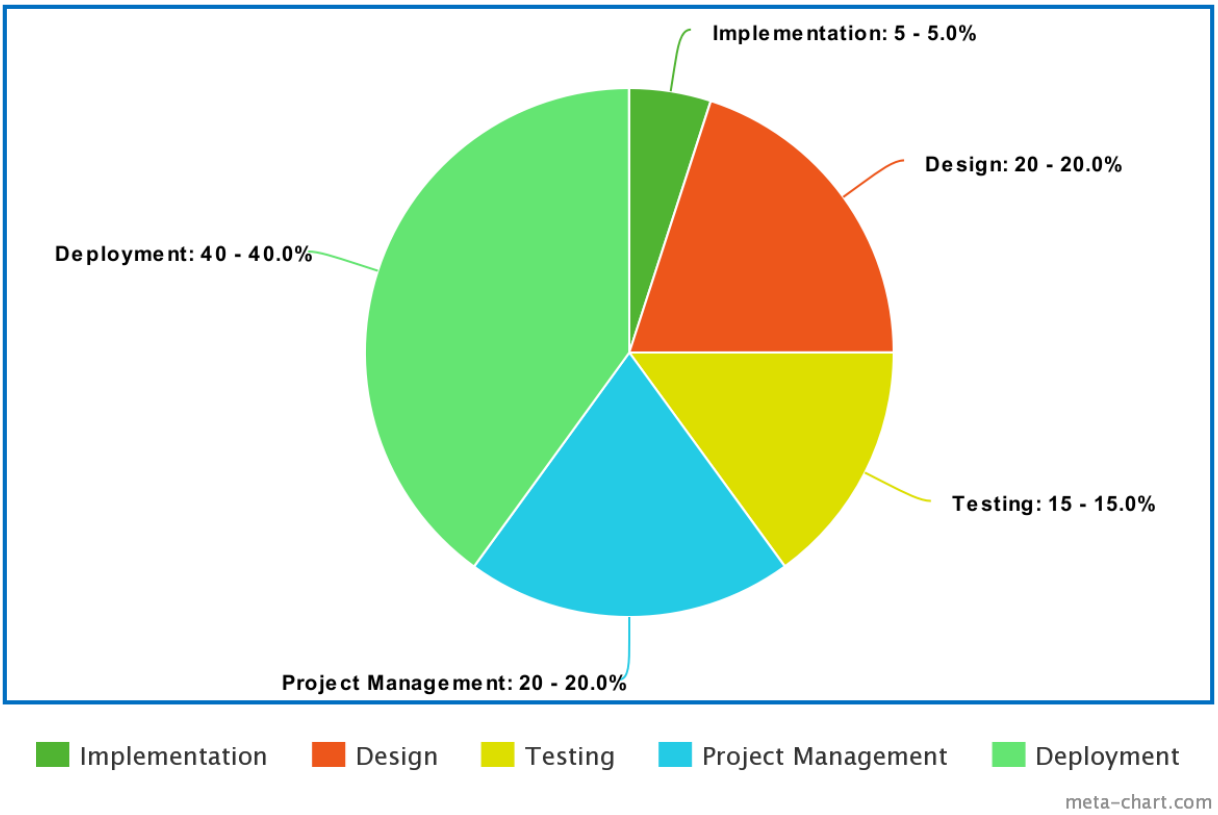

Fig 3.4: Process Wise Resource Allocation

Distributing resources in a specific way that supports my own team's goals is called resource sharing. For this project, the CS/CSE engineers are the main people, followed by the office computers and servers to stream the application. All work in the company is considered a resource, so everyone is assigned a specific task with specific deadlines. Regarding the Gantt chart in section 3.4, we need a total of 77 days to build the whole system.

The details of each step of the project are as follows:

3.4 Process/Activity wise Resource Allocation

• **Project Management:** The first phase or task is project management. That is all in detail the main idea of the project and what it is made for is explained. This project took 7 business days or 1 week to manage everything .Attributes to allow the project to start construction as soon as possible. Task separated for each person for project management. During the first couple of days, the lead developer and the CEO talked about what the project should look like created, d. H. From top to bottom, indicate which language is used. Then the project it is divided into subtasks so that you can plan your time allocation. So attitude goals and other deadlines that make it easier for employees to agree to projects and do their job. This next part consumed 10% of the total work.

Design: This is the second stage of creating the user interface for the web below an application is created. His CEO of Limmex Automation made a concession on this project. Designers can freely use UI/UIX design tools, so we used the UIX design tool "Figma" to prototype the front end of this.The next part is one of the most consumed parts he consumes 20% of the total work.

Implementation: In this phase the entire planning and design takes place. Now the entire application is implemented in a framework and tested hundreds of times step by step all the changes made to the application. Develop both frontend and backend, make changes and test did it. First build the frontend with React (a javascript library), then connect to Laravel 8 (a PHP framework) that handles your application's backend tasks. Next is Laravel routing and authentication. It is created with a `web.php` file and a middleware section. Finally, all the logic on each frontend page is written in PHP using Laravel and tested after each change. This implementation was a long process and took 50% of the work for the entire project. It also took 41 days or about 325 man-hours to complete this task.

Testing: Many tests are done by the developers depending on the implementation. However, the final review of the project should be done by the project manager. This test is conducted under all conditions required for testing. If any issues are found during this testing, the project will be reverted.

Developers with bugs found for fixes and further implementation if necessary. Testing took 15% of his effort and time for the entire project.

Deployment: Deployment is where the project is placed for practice usage by Clients. There are different deployment types depending on the type plan. Since this project is a web-based application, the deployment website must be internationally accessible from anywhere in the world. To do this, you will need to upload the following projects to your server: Public IP. Then you need to buy a domain with a similar name "bloodbank.com". Then the application has various login functions, so it also needs a database User type. In this project, the database is served by a company server. After completing all the above steps, your application should be able to start serving services for a moment. Deployment takes only a few days to complete.

3.5 Estimated Costing

Costs are calculated based on the requirements and features provided by. Next project on behalf of a client. Project requirements and features. It depends on the size, functionality and design of the website, including prototypes. Projects, design needs (themes, logo designs, custom images, etc.), total Page count, SEO (search engine optimization), databases, authentication, etc. Developers and resources used are taken into consideration throughout the project, The final estimated cost was 90,000. To 95,000 BDT.

Table 3: Estimated Cost

Features	**Costs in BDT**
Internet Bills	4500
Domain Bills	3500
Hosting Bills	1500
Project Manager	30000
Designer	25000
Developers	30500
Total Cost	95000

Chapter 4

Methodology

A methodology is a detailed method of gradually identifying, processing, and researching various facts about a particular topic. It involves analyzing methods how the Proposed Machine Works and Switch to a Simplified Platform Efficiently out of this gadget. The web utility I used in my internship was using the concept of methodology, we have added numerous features to the website and made it particularly flexible for our customers. using the concept of methods for the first time, I understood how firm management works. Then I split the device into several steps. Get a deep understanding of the components to make your device really usable where you can. This turns it into a very simplified device that is easy to use. Moreover, the simplified system is easier to understand and can be implemented as follows internet software. Because we must recognize that our interests are in the interests of our customers.

Hopefully the methodology helped clean it up and turn it into a virtual utility.

Chapter 5

Body of the Project

The project subject of the report is a detailed discussion of this work Students who want to know the depth and perfection of things. The main part of the project shows what is being done, how it is being done, and what the results are.

Also the conclusions and recommendations are made.

5.1 Work Description

Blood Bank Management System by atB is a blood bank management system where there are two types of login option. One is users & another is admin. This is a web application which automatically control the system of donating 7 searching blood according to demand of blood group.

Firstly user has to sign-up with information & after admin approval user can login into dashboard properly to post for searching or donating blood.

There are some modules. These are:

Sign Up: User will get firstly an option on home page to sign up with required information. After submission need to get the approval. When admin panel approves the information then the user get registered successfully to use the application.

Log in: After successful registration every time user can login with valid email id & password & get full access to the dashboard.

Change Information: There is a option to change information of users until the admin approve or reject for a successful registration.

5.2 System Analysis

System analysis is a problem-solving process that involves looking at a broad approach, segmentation, and finding out how they work to achieve a goal. It is used in information technology, where computer-based systems need to be configured once design analysis.

5.2.1 Six Element Analysis

Table 5.1: Six element analysis

Human	Non Computing Hardware	Computing hardware	Software	Database	Network and Communication
To register sign in to the system.	Monitor, mouse, keyboard, modem/internet	Desktop, Laptop, Smartphone	Chrome, Opera, Microsoft Edge etc	MySQL	Internet Connection
1. Log in with e-mail & password. 2. Select option from the dashboard.	Monitor, mouse, keyboard, modem/internet	Desktop, Laptop, Smartphone	Chrome, Opera, Microsoft Edge etc	MySQL	Internet Connection
1. Click to the option. 2. Select date, reason & blood group. 3. Post & wait for admin approval.	Monitor, mouse, keyboard, modem/internet	Desktop, Laptop, Smartphone	Chrome, Opera, Microsoft Edge etc	MySQL	Internet Connection
1. Check the list of blood request. 2. Accept to donate blood.	Monitor, mouse, keyboard, modem/internet	Desktop, Laptop, Smartphone	Chrome, Opera, Microsoft Edge etc	MySQL	Internet Connection

5.2.2 Feasibility Analysis

Possible studies show the functioning of the system vision, it'll help to elucidate the goals and objectives of building a system within the most effective, developmental way. The best plan and practice. Observation is employed to work out which one mental functioning which includes ensuring that the work is legal and professional possible additionally to economic forgiveness. We are going to be able to see whether or not what's being done is absolutely worth the support — in an exceedingly few cases, the business might not work.

The new working system needs to hear if it is possible to think about it in order to. The ultimate goal is to create productive efficiency. Here is advice for all possible problems, specifically performance or financial issues and how to solve them by referring new technology, operational and financial skills in their project. The search function is the ability to find out if a project has a chance to succeed. Split spending comparing customer needs and more. There may be several types of searches such as operational, technical and economic aspects.

Some of the terms of feasibility analysis are:

Technical Feasibility: Technical feasibility deals with small components of the method to transfer an object or organization (i.e. equipment, labor, supplies, business) which areas, what kind of development is needed, etc.). Consider technical feasibility please study B. A strategic plan or strategy, how the company created, stored. Broadcast and track its products or services. Technology research is one of them. Crop planning an incredible long-term research tool with some features. Completed as a framework for product resources to grow, you exceed yours Business your market for your physical gain not to mention performance.

Technology is about how you deliver your products and services.

Operational Feasibility: Potential performance is part of problem solving. Problems with supporting another proposed program, helps to use open doors. It satisfies the condition of dividing time between project development. It's important to know that management and customers support their work.

Here are the 6 structural elements that can cause split performance issues resolved. They are Performance, Knowledge, Economy, Control and Efficiency. Resources in the clinical management plan, the project should focus on what achieve the goal of success.

Schedule Feasibility: Schedule execution is reported as a project opportunity completed within the allotted time. If the standard of the project is high possibility of desire ending after a fixed date, then possible schedule considered high. Scheduling possibilities ensure project execution. It must be completed before the project or technology expires or becomes useless.

Economic Feasibility: Displays the id function of the Profitability Study. To allow the overall benefit of a proposed project or to distribute electronic devices. In other cases, combine services, benefits and expenses with an agency, office, and the general public.

5.2.3 Problem Solution Analysis

Problem solving requires thinking and understanding. Even if it looks easy isolating the problem can be a difficult process. One of the main issues is handling there are many changes in technology every day. Troubleshooting the act of explaining a problem. The cause of the problem id, prioritization and selection of alternative solutions and apply the solution and yes it is important for Congress to get additional needs.

A solution to the problem can be found using the following methods:

Identify the problem: Examine the situation to focus on the problem, not just his symptoms. Practical ways to solve problems include using diagrams expected process steps and cause-and-effect diagrams are identified and analyzed causes. The sections below explain important troubleshooting. These measures support the participation of interested parties, the adoption of knowledge of events, compare expected and actual, and focus on the cause of problem.

Evaluate and select alternatives: Experienced problem solvers use a variety of methods. Considerations when choosing the best option.

Implement and follow the solution: Can call on leaders to guide others use the solution, "sell" the solution, or assist with its implementation with the help of other. Engaging others to use is an effective way to gain support and support and reduced resistance to subsequent changes.

5.2.4 Effect and Constraints Analysis

Effect: Without a real-time updating system, it is difficult to maintain communication between donor & receiver very easily. Maintain conversations and remember them and never forgetting is not an easy task. Almost everyone forgets their blood request/donating history with other people after a certain period of time. Using online platforms/systems, a person can never forget a conversation with others because conversations are recorded and kept private so that only qualified users can see the posts.

Constraint Analysis: Constraints can be used to determine the desired structure of the embedded behavior of web documents and applets. Programmatic presentation both authors and readers can set page layout. Parameters are required and some are optional. This is the final display of the web page. A dialogue between the author and the audience, this dialogue

takes place without removing many barriers necessary and desirable for both parties. identify two sounds Problem-solving tasks based on system structure, different classification methods between a web server and a web client. Finally, we define a prototype-based constrained web authoring system and viewer implementation. In other words, it provides constrained embedding.

5.3 System Design

Process or method for outlining hardware and software program architecture, components, modules, interactions, and laptop device information to satisfy particular needs. One can see it because the utility of device idea to a laptop. Some are scattered with device evaluation coaching appears inevitable. Design gear like UML now restoration a number of the problems of laptop structures and connectivity.

5.3.1 Rich Picture

The rich picture is a graphical device that produces cool animated film like representations of trouble conditions inside organizations. Knowledge is won from more than one stakeholders and differing viewpoints generally inside a workshop context. A wealthy photo is used as one of the three number one gear in his tender machine technique keeping that it ought to now no longer be structured. The wealthy photo device is famous among many analysts however has been increasingly criticized over time for its loss of syntax, shape and rules.

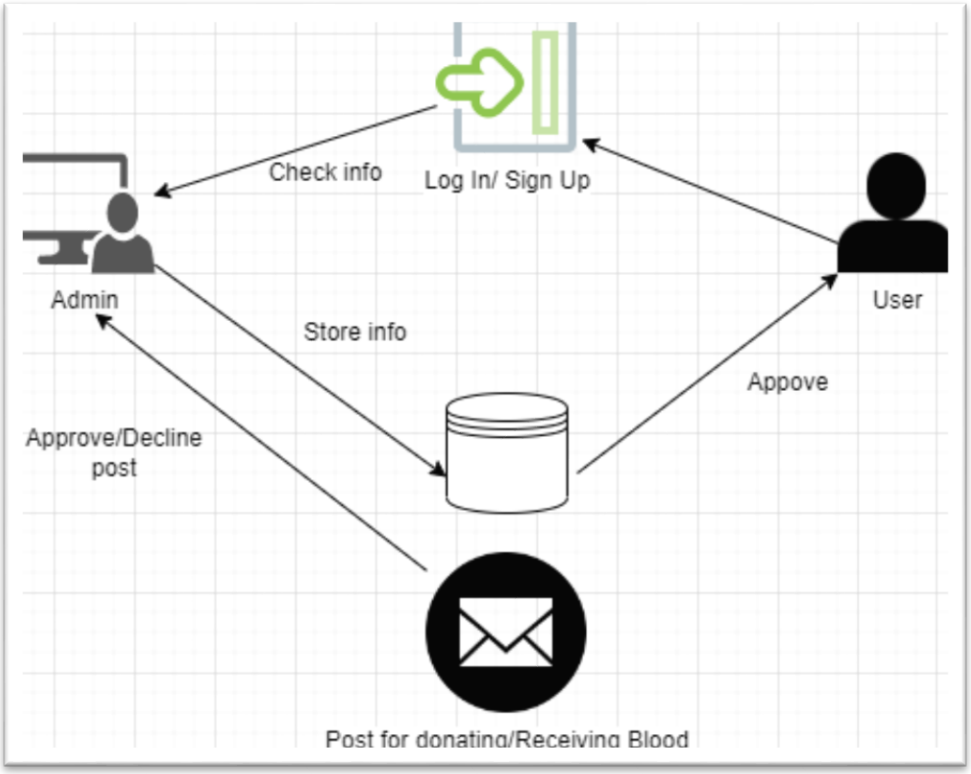

Fig 5.1: Rich Picture

5.3.2 UML Diagrams

Integrated Modeling Language (UML) is a popular and growing target language. represents the field of software engineering to deliver quality how to detect system settings. Every complex system is best understood to produce some kind of drawings or photos. These drawings have a better influence on our understanding. If we looking around we will see that paint is not a new concept but is widely used in different ways in different industries.

Use Case Diagram: A use case diagram explaining how the charges are used it. For example, let's talk about fees for using withdrawals. This is the process insert card, enter PIN, select value, withdraw money, issue a card. Of course, all these services come from customer opinions, but in this order should not be included in use case diagrams. Recommend other pictures it looks like a working sketch. The working case diagram should describe the desired functionality associate the system with the use of cases and signatures. So it can represent an existing idea of the system and how it might be interpreted differently - only then fully understand your needs.

Use case diagrams of Blood Bank Management System are given below:

Module 1: Login/Sign up

Actor: User

Description: The diagram will present the process.

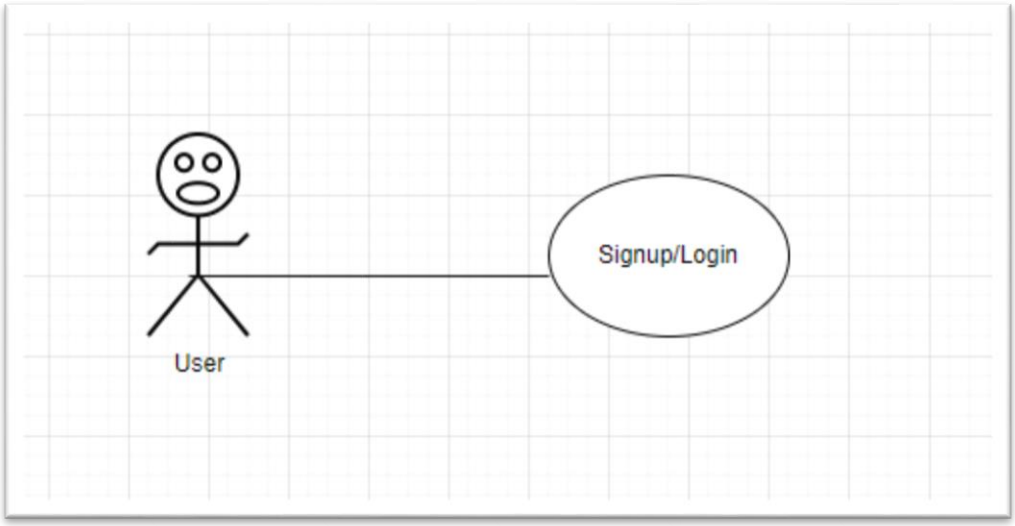

Fig 5.2.1: User Signup/Login

Module 2: Verification/Approve by Admin

Actor: Admin

Description: The diagram will represent it.

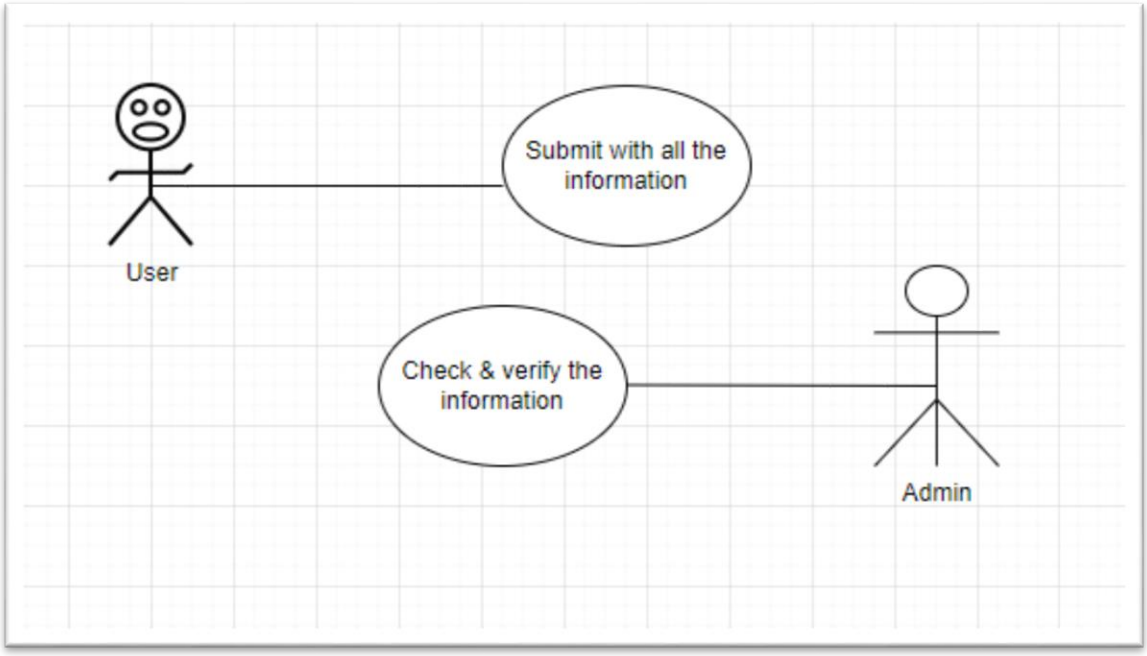

Fig 5.2.2: Verification

Module 3: Post for receive/donate blood

Actor: User & Admin

Description: User will post for donating blood/receiving blood & admin will check the post with valid reason &approve/decline the post.

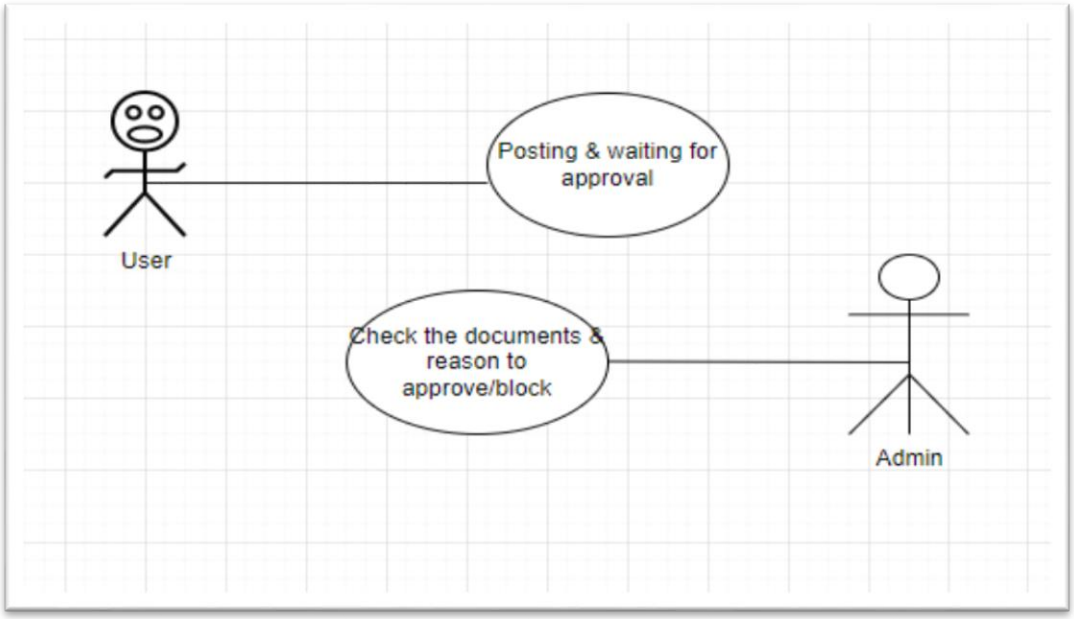

Fig 5.2.3: Post approval

Activity Diagram:

In UML, an activity diagram offers a view of the conduct of a gadget with the aid of using describing the series of movements in a process. Activity diagrams are just like flowcharts because they display the float among the movements in an activity; however, activity diagrams can additionally display parallel or concurrent flows and exchange flows. In activity diagrams, you use activity nodes and activity edges to version the float of manage and facts among movements.

Activity diagram is important in several phases of a project:

- Before beginning a project, you may create activity diagrams to version the most vital workflows.
- During the necessities phase, you may create activity diagrams to demonstrate the waft of activities that the use instances describe.
- During the evaluation and layout phases, you may use activity diagrams to help outline the conduct of operations.

The following topics describe model parts in activity diagrams:

- **Activities:** In UML, activities are instrumentation parts that describe the very best level of behavior in {an exceedingly in an activity diagram. Activities contain many activity nodes and activity edges that represent the sequence of tasks in a advancement that lead to a behavior.
- **Actions:** In UML, an action represents a distinct unit of practicality in an activity. Actions have incoming and outgoing activity edges that specify the flow of management and information to and from different activity nodes. The actions in an activity begin once all of the input conditions are met. Input pins and output pins are often accessorial to specify values that are passed to ANd from the action once it starts.
- **Control nodes:** In activity diagrams, an impact node is an abstract activity node that coordinates the flow of control in an activity.
- **Object nodes:** In activity diagrams, an object node is an abstract activity node that helps to outline the item flow in an activity object node indicates that an instance of a classifier could be offered at a specific purpose within the activity.

- **Activity edges:** In activity diagrams, an activity edge may be a directed affiliation between 2 activity nodes. Once a selected action in an activity is complete, the activity edge continues the flow to future action within the sequence.

The Activity Diagram of the project:

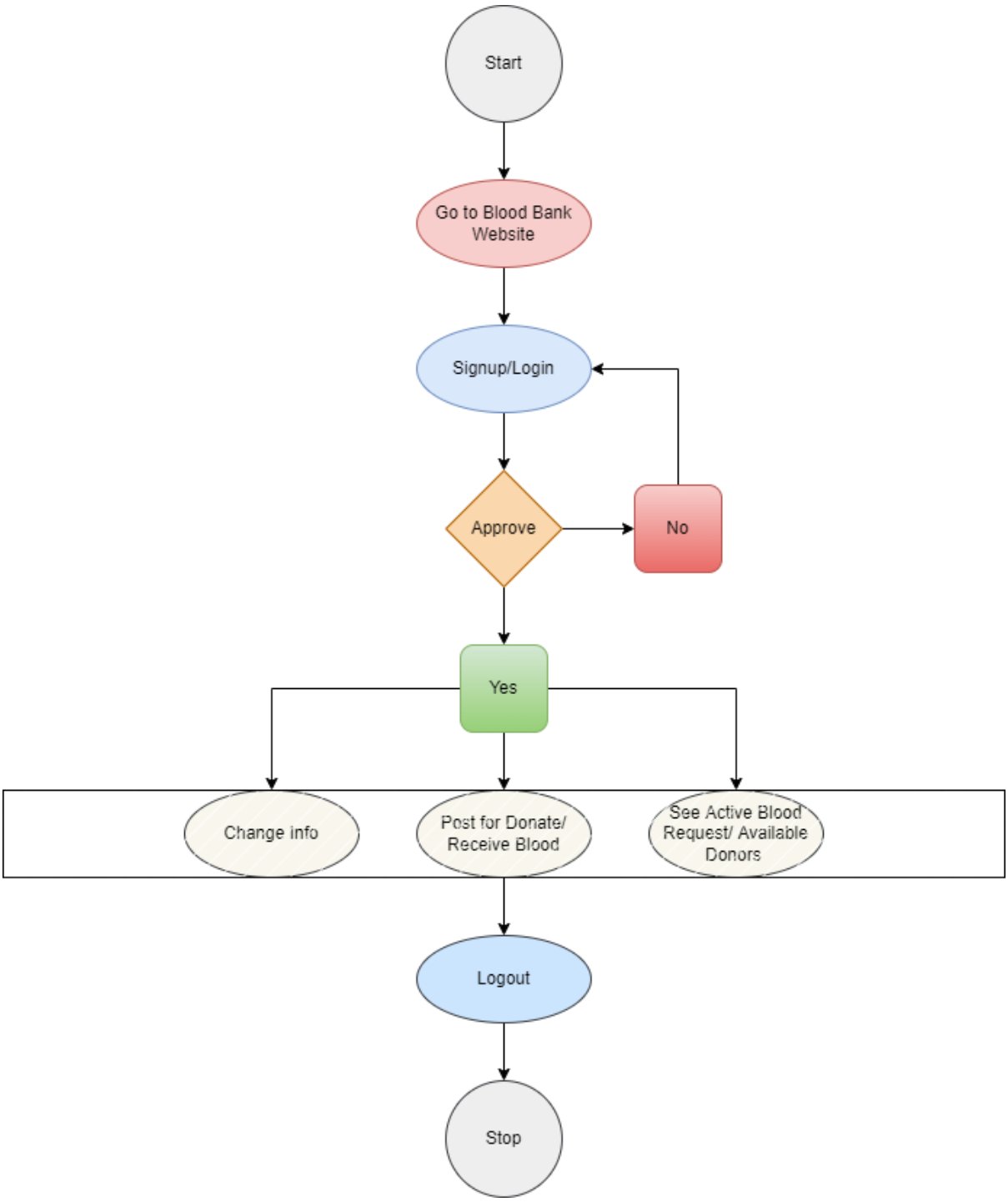

Fig 5.3.1: Activity Diagram for User

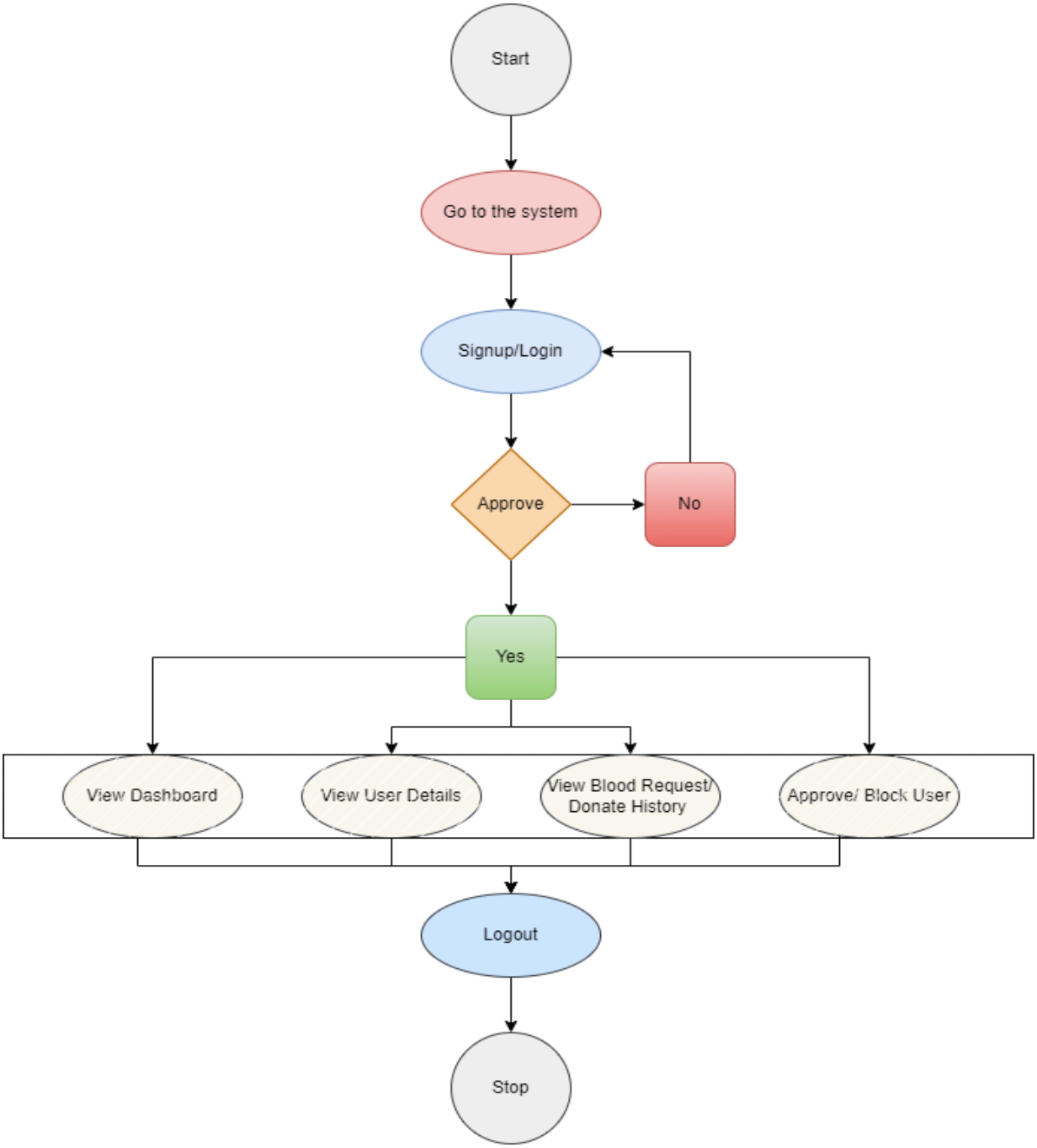

Fig 5.3.2: Activity Diagram for Admin

Entity Relationship Diagram:

An entity relationship diagram describes how entities relate to every other. In easy terms, it's a picture or a framework of your enterprise or a positive enterprise process. Entities are the matters we want to save information about. It's a component of your enterprise that desires to save information, including a department – or sales, revenues, perhaps clients. It additionally offers a picture of the way those entities relate to every other. We can name it the blueprint that underpins your enterprise architecture, imparting a visible illustration of the relationships among one-of-a-kind units of information (entities).

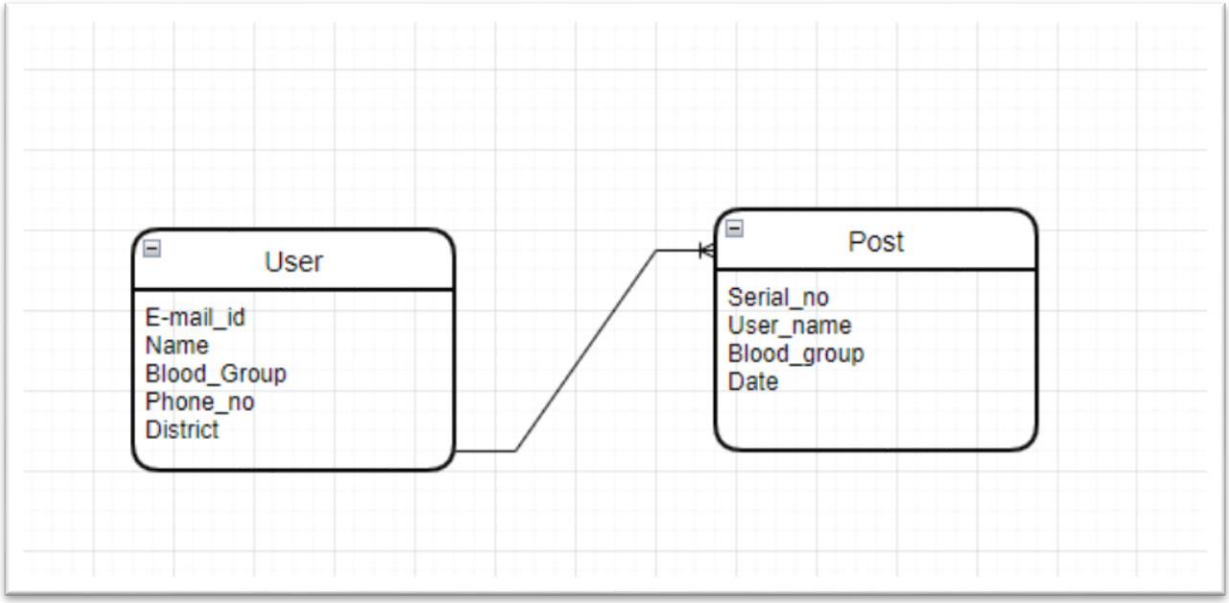

Fig 5.4: ERD Diagram

5.3.3 Functional and Non-Functional Requirements:

Functional Requirements:

Need a written description of a characteristic or electricity that a brand new or advanced product layout ought to incorporate. It typically has a whole lot of details, and it explains what ought to be given, now no longer how it'll be provided. In different words, it does now no longer consist of utilization details. The requirements, in addition to the files from which it's miles made, are legally binding and consequently the language utilized in them may be very clear.

Table 5.2.1: Functional Requirement- Login

Function – Log in		
Input: Email ID, Password	Process: Check the inputted mail & password with database stored user info	Output: A successful login into the system.

Table 5.2.2: Functional Requirement- Change Information

Function – Change Information		
Input: User Name	Process: Check the input number & replace the new number in database	Output: Successfully information changed.

Table 5.2.3: Functional Requirement- Need Blood

Function – Need Blood		
Input: Select blood group, input date & purpose & click th post button.	Process: Check the inputs by admin & approve for getting donor.	Output: Successfully approved or reject the post..

Table 5.2.4: Functional Requirement- Donate Blood

Function – Donate Blood		
Input: Click the 'Active donate request ,select blood group & district	Process: Check the saved valid Donor according to district.	Output: Successfully found the donor.

Non - Functional Requirements:

Inactive necessities are a fixed of necessities that decide how nicely the machine will paintings in preference to working necessities that awareness at the precise commercial enterprise capability carried out for he does. How the app will paintings is not anything however a distinctive high-satisfactory parameters consisting of accessibility, efficiency, reliability, usability, etc. on the premise of that app high-satisfactory is rated.

Here is few of the attributes of non - functional requirements:

- **Usability:** Usability is described because the degree of the diploma to which an software may be without problems used and operated. For example, within side the case of a brand new software, the less difficult the glide of the software is for the person to function it smoothly, the better can be the usability.
- **Scalability:** Scalability is described because the cappotential of the gadget to cater to the developing utilization of the software. It is of sorts horizontal and vertical scaling. This horizontal scaling may be executed extra through including extra machines. Vertical scaling is furnished through including extra CPU and RAM to the to be had machines.
- **Security:** Security is one of the maximum essential attributes of non - practical necessities. It is the degree of the resilience of the software beneathneath any type of malicious attack.
- **Accessibility:** Accessibility is the cappotential of an software to cater to the desires of the person with unique desires or disabilities the usage of a few assistive generation like display readers.
- **Data integrity:** Data integrity offers with the integrity, consistency, and correctness of the facts within side the software.

- **Durability:** Durability is the degree of the cappotential of the software to cater to the necessities for a protracted duration of time.
- **Maintainability:** Maintainability is described as the benefit with which an software may be restored to running situations after a failure.
- **Performance:** Performance is a non-practical requirement that offers with the degree of the reaction time of the software beneathneath exclusive load situations.
- **Reliability:** Reliability of a software program gadget uses the Mean Time Between Failure (MTBF) parameter this is the time elapsed among 2 failures. The longer the MTBF the extra dependable is the software.
- **Robustness:** The robustness of a software program software is the degree of the cappotential of a software program software to cope with invalid or faulty enter effectively.

5.4 Product Features

A product is a service designed to reach the particular needs of individuals or businesses. Product attributes include features and attributes that add value to customers and separate the product from the retail center. Businesses that manufacture and sell a product or service need to ensure that certain characteristics are present like any other product on the market. This ensures the company a competitive advantage in the world of marketing. In other words, the product feature states that the capabilities are typically provided by a software program that allows the user to do something appropriate.

5.4.1 Input

The inputs of "Blood Bank Management System" are given below:

Table 5.3: Inputs of Blood Bank Management System

Process	Field Type
Log in	Email: String Password: String
Create Post	Blood Group: String Date: Integer Purpose: String

5.4.2 Output

The outputs of "Blood Bank Management System" are given below:

Table 5.4: Outputs of Blood Bank Management System

Log in	On Success: Access to the user dashboard. Failure: Return to the log in page again
Make blood Request	On Success: Make a blood request and get response. Failure: Status pending/ remove from emergency post.
Donate Blood	On Success: Ensure the blood donation successfully. Failure: Because of valid reason get rejected to donate.

5.4.3 Architecture

A web application could be a program that uses a web browser to try to to one thing jobs. Comes with middleware and UI that connects each client, server, and details (domains) whereas backend scripting saves knowledge, frontend transfers that data to shoppers who support data exchange. In straightforward terms, the look of an online application is a approach The system works throughout your daily browsing - enter the net address, read site, and communication - while the browser is transferring data to the server.

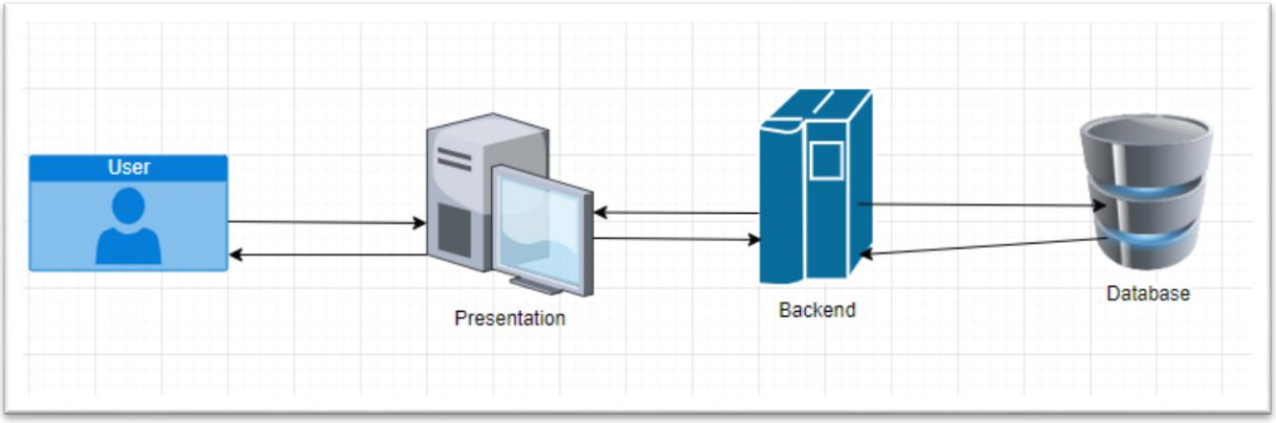

Fig 5.5: Architecture

As the user submission interacts with the frontend, the frontend receives inputted --pps--requests and forwards them to a web server that processes that request using the necessary --pps--intelligence using the website processed and/or file system if required. And finally --pps--feedback returns came at the end where the user can see it as output.

Chapter 6

Results & Analysis

On this project the web utility page: of this challenge all capabilities as soon as sports are analyzed and evaluated in addition to the development this is handed step through step. Debugging the app has made a great and great extrade in each ends and alertness back-stop enhancement. There had been numerous instances to show that they had been finished precisely as deliberate from the beginning. The challenge did now no longer pass similarly regularly evolved till every test returns the predicted output. Through this method, the utility is made gradually and lively.

6.1 Software Testing

Software testing is outlined as a package verification method or the appliance has no interruptions, meets the technical requirements as directed structure and development, and meets the wants of shoppers resultively and expeditiously with facilitate to manage all uncommon things and limitations. The statistics below show the test and effect of all net application methods. The following tasks are provided if bound conditions are met with success.

Table 6: Software testing table

Test ID	Test Case	Description	Steps to be Executed	Expected Result	Actual Result	Pass/ Fail
T1	Sign in	User first fill up the sign up form with proper information	1. Go to the sign up form. 2. Enter all the required information correctly. 3. Click the submit button.	Full access to the dashboard	Get access to the profile dashboard & waiting for admin approval	Pass
T2	Need Blood	User need to create a blood receiving	1. Click to the need blood option. 2. Fill up the	Post should be published.	Waiting for the admin approval.	Pass

		request	form. 3. Click to the post button.			
T3	Donate Blood	User will check the request & respond to the post.	1. Click to the donate blood option. 2. Check the request & choose to donate/decline	Donate confirmation status should be updated	Donate confirmation is updated.	Pass

6.2 Screenshots of Project

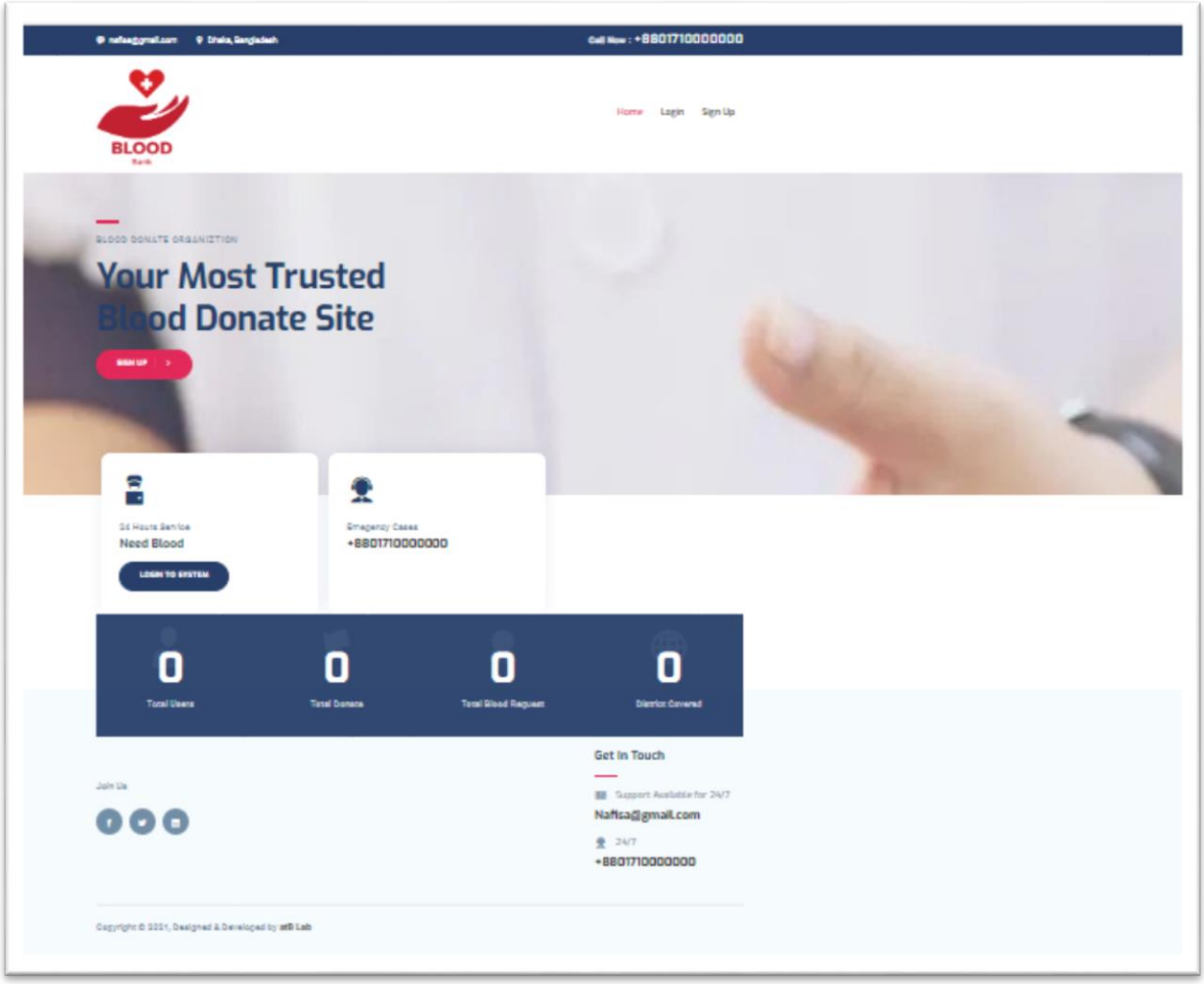

Fig 6.1: Home Page

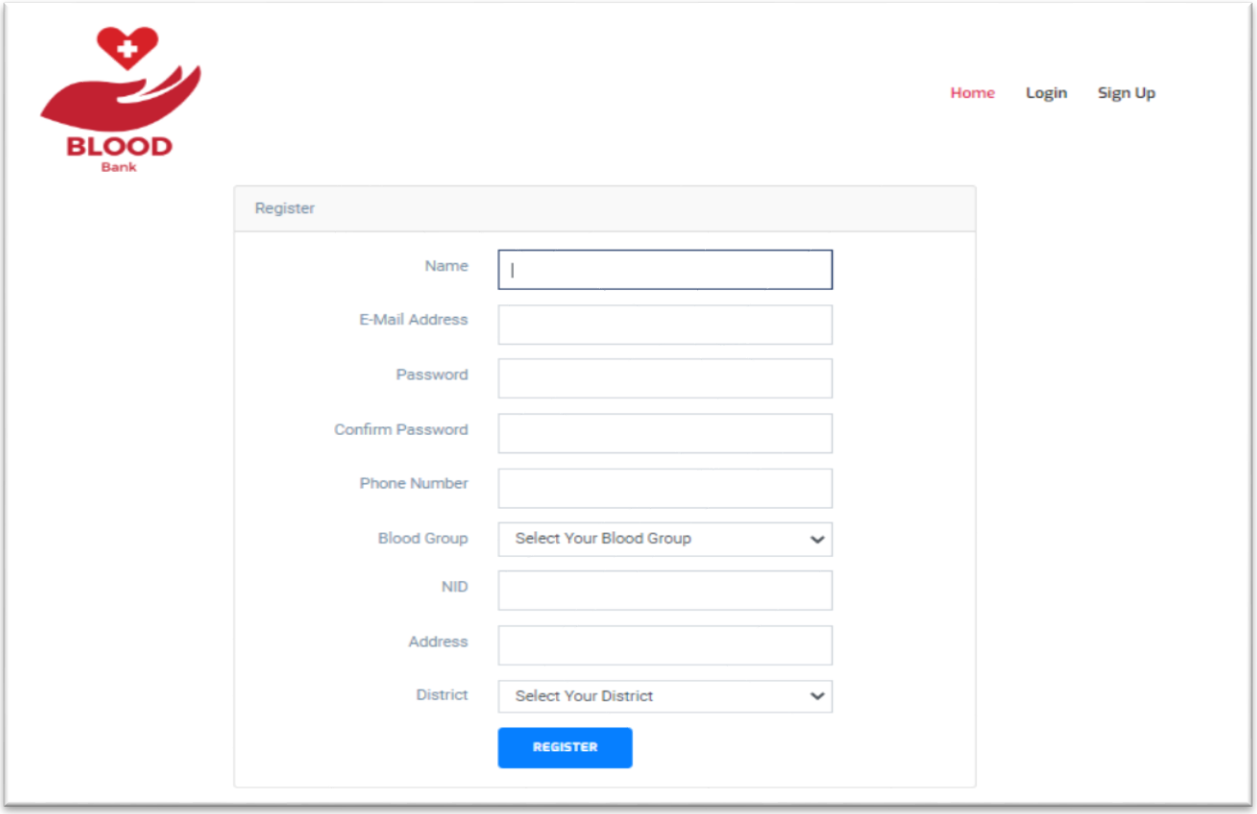

Fig 6.2: Sign Up Page

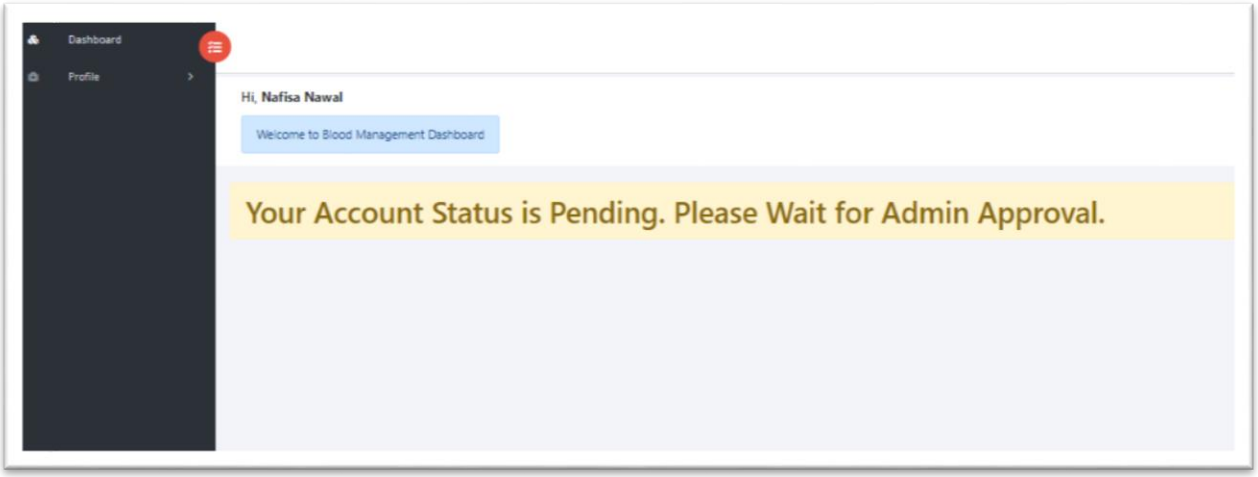

Fig 6.3: User Dashboard

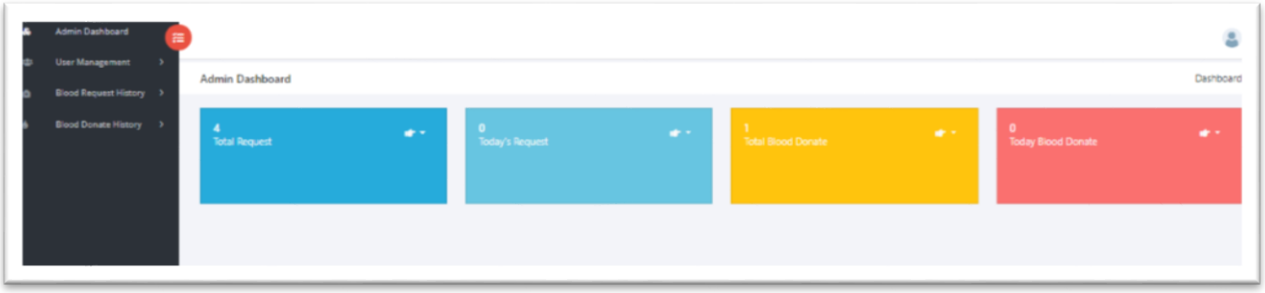

Fig 6.4: Admin Dashboard

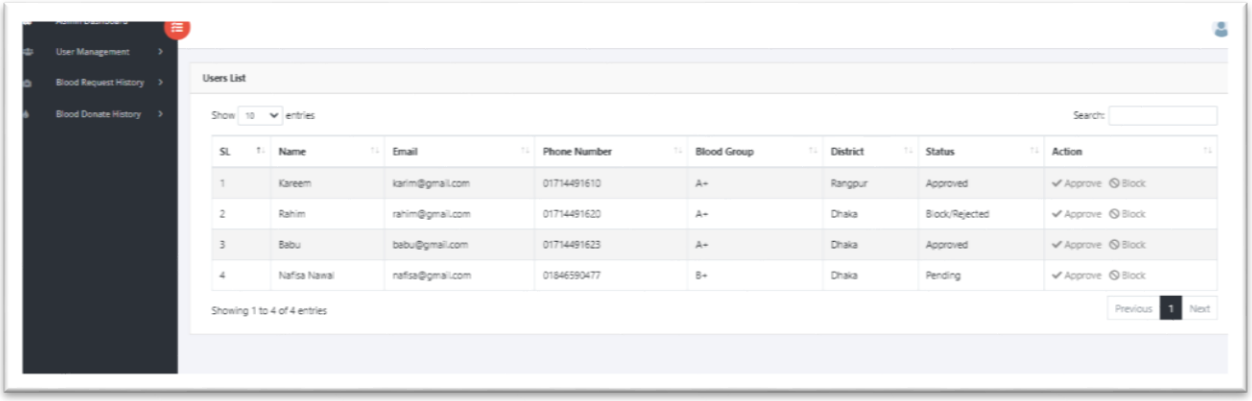

Fig 6.5: User's List with Details

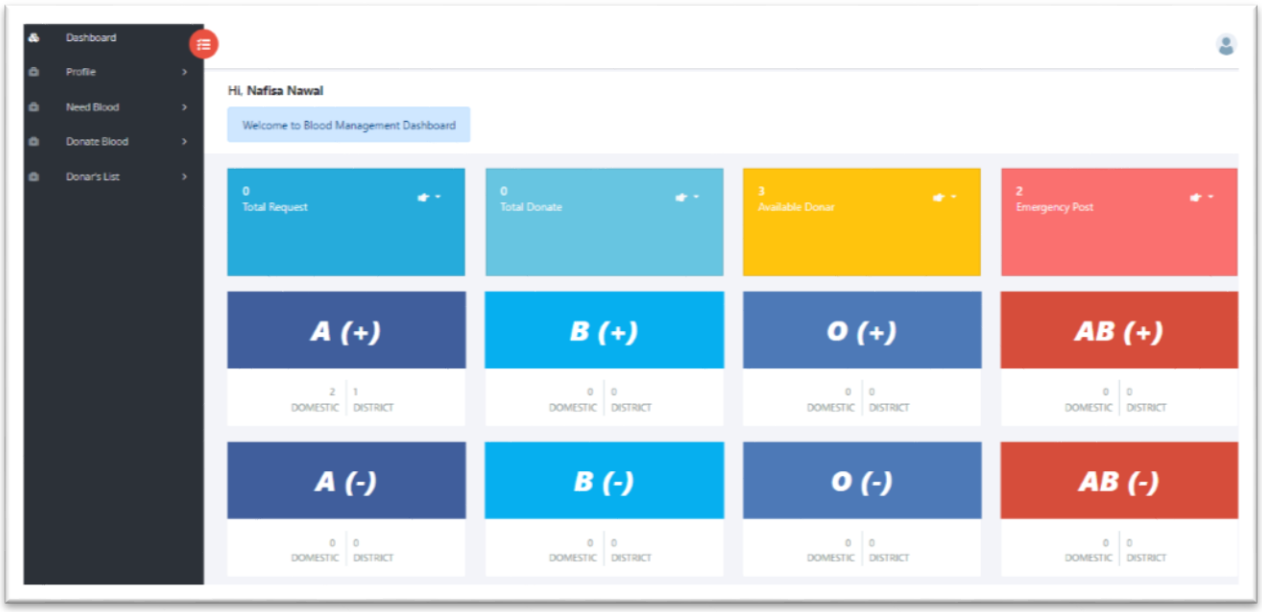

Fig 6.6: User Dashboard after Approval

Fig 6.7: Create Blood Request

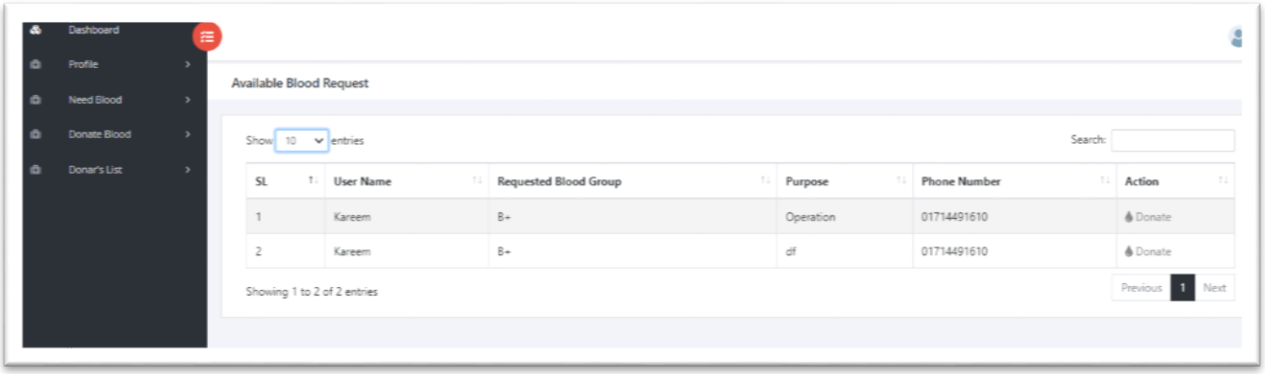

Fig 6.8: Blood Request History

Chapter 7

Project as Engineering Problem Analysis

The problem may be solved via way of means of cautiously studying and generating however answers to the hassle after which determining which one will be the maximum suitable solution. Building a problem tree, figuring out a prime hassle with purpose and effect, and developing multiple purposeful answers is referred to as engineering hassle analysis. Project sustainability is a commercial enterprise technique that balances the environmental, social, monetary elements of goal-orientated sports on the whole to reap the participants' best hobbies without compromising or burdening destiny generations. This is an internet software designed to paintings on a computing device or pc computer. However, if necessary, it may be upgraded as a mobile app as maximum human beings in Bangladesh today have smart phones extra than ever and could experience extra comfortable than the usage of a computer software. This project can be sustainable in three categories:

7.1 Sustainability of the Project/Work

Social sustainability: Social sustainability is a good thing to manage and establish business impacts on workers, employees in price chains, customers, and native teams. Businesses that promote the importance of social sustainability perceive the importance of their relationships with individuals, groups and communities. Social responsibility becomes a part of their core approach and they see however their activities have an effect on people. As it's a blood donation related work so it will help to build a community who are willing to work for society & to save life.

Financial sustainability: An growth in debt. This method is how the application charges may be controlled after the web application is issued. The working charges of this software include: server, website, database management also.

Organizational Sustainability: The leadership, talent, world awareness and transformational methods required to maximize the distinctive challenges facing organizations these days are referred to as Organization Sustainability. The Blood bank management system web has several options that are scheduled to be employed in the long run when release. Because it has many programs, the applying are going to be updated with minor changes with the subsequent programs. We will so say that the following net application is invited by the organization.

7.2 Social Effects and Analysis

Environmental associate degreed social impact assessment involves an integrated approach, that includes assessing the economic elements of a project - supported value and profit estimates - and therefore the environmental impact of the project implementation.

Social effect: Nowadays society depends on technology internet & smartphone. So the Blood seeker will seek it firstly & easily through internet & people will get easily connected with each other to help by this web application in need of blood or donation.

7.3 Addressing Ethics and Ethical Issues

The ethical code in ordinary existence acts as an ethical code, incorporating a ethical code that describes conduct as proper or wrong. The Web gives a great opportunity to work with ethics & showing humanity to the people.

Fraud and Identity Theft: Third party software activation is not included in these applications, which can be very harmful for the web application.

Data Security: All users are protected by secured login. This implies that while not collateral the right login, no user will access their desired data or perform any activity relating to the site on the far side of their limit.

Chapter 8

Lesson Learned

Internship was totally a new experience to me. Where I've faced some challenges and issues; However, I have to search out solutions to those problems. I learned a great deal of the latest ways to resolve problems in my training period and enjoyed it.

8.1 Problems Faced During this Period

Scratch Planning of the Structure: As for the first time I was working on this kind of topic so it was little bit confusing for me to planning from the beginning of the project.

Front-end Design: The way of imagination format, features, layouts all over the overall presentation of front-end to make it easy to understand was difficult.

Laravel Framework: It was totally a new experience for me to working with laravel & php. So from the installation to working on it was not easy going.

Bugs fixing: From the installation of packages to writing code & running the project there were bugs to fix.

8.2 Solution of those Problems

The problems were solved by following these steps:

Scratch Planning of the Structure: Talked with other interns & took help from the goggle to do the plan.

Front-end Design: From the planning & according to the users requirements the front-end was designed.

Laravel Framework: It took time to study the framework & understand the method of this framework then solved the problem.

Bugs Fixing: Installation errors were solved by taking help from my senior colleagues & also youtube tutorials & in logic building & writing code tried to grab the key point & solved the problem.

Chapter 9

Future Work & Conclusion

The future of work describes changes within the approach work are going to be done over the succeeding 10 years, has contributed to technological change, generation, and society.

9.1 Future Works

Blood donation mainly is being done manually through volunteer work or in emergency cases through hospital. But with the update of technology it will be also 90% digitalized &people will be dependent on application rather than manual search.

So for the betterment of usability in future these features can be added:

React for the Front-end: Here we've designed the front-end by HTML & CSS but React can be added for better view.

Emergency Notification: Emergency notification with active alert for valid users can be added so that people get help within mean time.

Profile Picture of NID Picture: To maintain the security & validation profile picture same picture of NID can be added.

9.2 Conclusion

My internship experience turned into one in all my excellent work revel in. The supervisor and all the alternative elders helped me each time I wished assist from them, specifically in analyzing Laravel. At first, I had little or no concept approximately installation and its packages, however, they taught me the fundamentals and gave me some initiatives to study the shape of the response code. As an expert trainee, I changed into imagined to paintings on the use of the react with laravel framework however due to my software, they gave me the possibility to paintings as a complete stack internet developer. Worked as an internet developer for complete stacks for the primary time for me. I even have received a lot of revel in operating on this subject and operating with any such superb team and coaches is a privilege for me. The idea of this internet software appears simple, however after I commenced growing it, a variety of thoughts commenced to emerge and after I shared them with my coaches, they had been glad and desired me to apply it if I should in spite of now no longer being on the topic, for example, to growth farmer visits. In conclusion, I would really like to thank each my inner and outside managers whose steering and thought have prompted me to try for fulfillment on this profession and fight for achievement.

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An Undergraduate Internship/Project on yourTopic

By

Nafisa Nawal

Student ID: **1810064**

Summer, 2022

Consent Form

The student modified the internship final report as per the recommendations made by his/her academic supervisor and/or panel members during final viva, and the department can use this version for archiving.

On recommendation of the board

(Signature of the Supervisor)

September 25, 2022

Name of the Supervisor

Department of Computer Science & Engineering

Independent University, Bangladesh