Green University of Bangladesh

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Blood Donating System

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Lab Project Status	
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Chapter 1

Introduction

1.1 Overview

The blood donating system was constructed for finding blood donors easily. This project provides search facilities for blood groups and finds their address and contact number. Its also provide multiple route from patient to donors also minimum distance from donor to patient. It can be used to add new donor information. If any patient will need any blood group then they will be finding a lot of blood donors by using this system whose blood groups are the same as the patient. And also patients can request blood that they need and the first patient will be given first as soon as possible.The recipient can see how far away the donor is. In this project, we tried to implement counting the distance from the source.we tried to make such an interface that It works like a family doctor.

1.2 Motivation

There can be several motivations for creating this project. Some of them are:

- The blood donating system project simplifies the blood finding and donating.
- System for individual donors and acceptors.
- Here can be added multiple donor information like blood group, contact information, health condition, etc.
- Users can find their needed donor as their recommendation.
- If any donor put his wrong information and need to change contact number, address,And any other else.
- Then they can update or delete their information and authority can restore the data from trash file.
- Patients can see who is near by him with their distance.
- If anyone want they can count short path form the source in this system.

- The aim of this project is to save the lives by provides blood to those has need to blood in emergency situation.
- Create an user friendly interface for both the donor and patients.

1.3 Problem Definition

1.3.1 Problem Statement

The problem of the ' blood donating system' project solves is the lack of a user friendly management system that simplifies Inefficient Inventory Management, Inadequate Donor Management,Ineffective Donor-Recipient Matching, Reporting and Analytical Challenges, and Security and Privacy Risks in this system. Users face difficulties in dynamically managing custom locations.Real-time updates and the absence of a comprehensive shortest path calculation further impede the system's effectiveness.also,there is no contacting options between donor and acceptor and no advise option for both. The problem statement summarises the requirement for an enhanced user interface to address these issues and raise the system dispatch operations' general effectiveness and responsiveness.

1.3.2 Complex Engineering Problem

Table 1.1: Summary of the attributes touched by the mentioned projects

Name of the P Attributess	**Explain how to address**
P1: Depth of knowledge required	Java Programming language, Different algorithms,class,methods,variables,graphs,string, loops,merge sort algorithm, DFS, Dijkstra's, string matching algorithms and so on.
P2: Range of conflicting requirements	Data Security, Database Management,Real-Time updating & Secured Login Interface.
P3: Depth of analysis required	User needs, data management, technical ability, functional requirements, and user experience , user interface analysis and UX/UI Analysis
P4: Extent of applicable codes	User Interface Code, Data Management Code, adding Integration Code, Itinerary Management Code, Algorithmic Code
P5: Interdependence	Correct user inputs, Efficient memory & data management.

1.4 Design Goals/Objectives

In Blood Donating System, I have many goals. I tried to add my system, such as:

- Add information of blood donors.
- It will be to show the information of blood donors.
- Patients find a blood donor whose blood group matches with their needed requirements.
- If any donor put his incorrect information like changing contact number, address and any other else, then they can update their information.
- If need to delete donor information we can easily delete that particular donor.
- Recycle bin also here, it contains deleted information and user can restore data.
- Patients can request for blood group. Here first requested patient take first.
- Patients and donor can see their distance between them.
- This project contains healthcare feathers.
- By using this, patients and donor get facilities and could treats like a family doctor.

1.5 Application

The Blood Donating System project has various applications in healthcare and blood management organizations. Here are some specific applications of the system:

- **Blood Banks:** The system helps blood banks efficiently manage and track their blood inventory, including blood types, quantities, and expiration dates. It enables to maintain of donor records and manage eligibility criteria
- **Hospitals and Healthcare Facilities:** The system ensures the availability of compatible blood units for transfusions. Healthcare professionals can submit blood requests and reserve blood units through the system streamlining the process and reducing delays.
- **Donor Centers:** It helps assess donor eligibility based on medical history, previous donations, and deferral criteria, ensuring safe blood collection. The system supports communication with donors, encouraging regular donations, and maintaining a strong donor pool.
- **Transfusion Services:** The system assists in matching recipient blood requirements with compatible donor blood units, ensuring safe and effective transfusions. The system provides a traceable record of blood units from donation to transfusion, enhancing patient safety and accountability.
- **Research and Reporting:** The system facilitates data analysis, generating reports on blood usage, inventory levels, donor statistics, and trends for research and decision-making.

- **Quality Control:** By analyzing data, the system can identify and address issues related to blood management, and improve quality control processes.
- **Emergency Services:** The system enables quick access to blood units during emergencies, ensuring timely transfusions for critical patients.

Chapter 2

Design/Development/Implementation of the Project

2.1 Introduction

Blood is a precious resource that can save lives. A blood donating system is an application that helps to manage the blood and try to reach needy people. This type of system can be used to track the inventory of blood products, manage donor records, and schedule blood transfusions. This type of project can help us in emergencies.

2.2 Project Details

The objective of the Blood donating System project is to develop a comprehensive and user-friendly software application that automates and streamlines the management of blood donations, inventory, and transfusion processes within a healthcare organization or blood bank. The system aims to improve efficiency, accuracy, and safety in blood management practices while ensuring the timely availability of blood units for patients in need. we include locations in the future that integrate additional services and provide personalized recommendations to enhance your experience With a robust design and intuitive features, this system stands at the forefront of enhancing emergency response mechanisms for the safety and well-being of the community.

2.3 Implementation

Here are the operations that have been implemented in many parts of the project -

- Login Interface.
- Requirements for blood.
- Find nearest donor by sorting distance.
- Added Donor Information .
- Display Donor Information .
- Search Donor by blood group.
- Search Donor by names and address.
- Update donor information.
- Delete donor information.
- Display recycle bin.
- Restore deleted information from bin.

Chapter 3

Performance Evaluation

3.1 Simulation Environment/ Simulation Procedure

All elements of the project were created within the Apache NetBeans IDE. The IDE was employed on a computer running the Windows 11 operating system, and the JDK was installed on the device to support the functionality of the IDE.

3.2 Results Analysis/Testing

There are multiple output screenshots illustrating different sections of the project:-

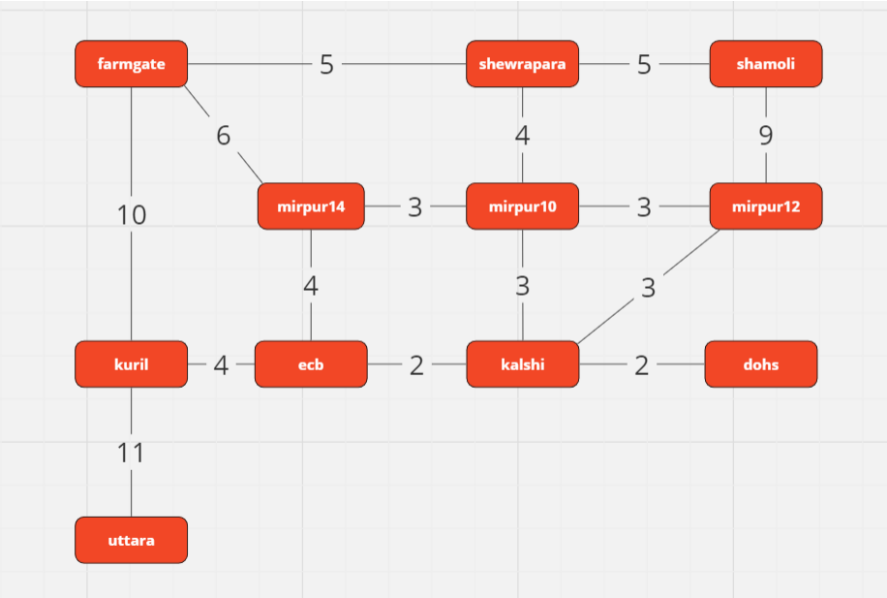

Figure 3.1: Graph for representation path.

```
run:
                Blood Donating System.

Give your Information First.


        Donor name: piash


        Age: 12


        Mobile Number: 1234


        Address: mirpur10 dhaka


        Blood group: B+


        Last Donated Date: 12/12/2023
```

Figure 3.2: Firstly give user information

Figure 3.3: Main Interface.

```
Please enter your choice:3

Donor name: piash

Age: 12

Mobile Number: 01628927933

Address: dohs

Blood group: B+

Last Donated Date: 24/11/23
```

Figure 3.4: Give donor information.

```
Please enter your choice:4
-------------------------------------------------------------------------------------------------------------------
|SERIAL  |NAME              |AGE        |MOBILE NUMBER  |ADDRESS              |BLOOD GROUP        |LAST DONATED        |DISTANCE    |
-------------------------------------------------------------------------------------------------------------------
|1       |piash             |14 Years   |12345          |uttara dhaka         |b+                 |12/12/23            |15
|2       |amjad hossain piash |24 Years   |123454         |kuril                |b+                 |                    |4
|3       |hossain kabbo     |24 Years   |1456           |dohs                 |a+                 |15/12/23            |4
-------------------------------------------------------------------------------------------------------------------
```

Figure 3.5: Display given nformation.

```
Please enter your choice:5

Search Donor by Name or Address: kabbo
-------------------------------------------------------------------------------------------------------------------
|SERIAL  |NAME              |AGE        |MOBILE NUMBER  |ADDRESS              |BLOOD GROUP        |LAST DONATED        |DISTANCE    |
-------------------------------------------------------------------------------------------------------------------
|3       |hossain kabbo     |24 Years   |1456           |dohs                 |a+                 |15/12/23            |4           |
-------------------------------------------------------------------------------------------------------------------
```

Figure 3.6: Output for Search Donor.

```
Search by Blood Group: b+
-------------------------------------------------------------------------------------------------------------------------------------------------------
|SERIAL  |NAME               |AGE         |MOBILE NUMBER  |ADDRESS                |BLOOD GROUP         |LAST DONATED        |DISTANCE    |
-------------------------------------------------------------------------------------------------------------------------------------------------------
|1       |piash              |14 Years    |12345          |uttara dhaka           |b+                  |12/12/23            |15          |

        Route 1: [ecb, mirpur14, mirpur10, kalshi, mirpur12, shemoli, shewrapara, farmgate, kuril, uttara], Total Weight: 53
        Route 2: [ecb, mirpur14, mirpur10, mirpur12, shemoli, shewrapara, farmgate, kuril, uttara], Total Weight: 50
        Route 3: [ecb, mirpur14, mirpur10, shewrapara, farmgate, kuril, uttara], Total Weight: 37
        Route 4: [ecb, mirpur14, farmgate, kuril, uttara], Total Weight: 31
        Route 5: [ecb, kalshi, mirpur10, mirpur14, farmgate, kuril, uttara], Total Weight: 35
        Route 6: [ecb, kalshi, mirpur10, mirpur12, shemoli, shewrapara, farmgate, kuril, uttara], Total Weight: 48
        Route 7: [ecb, kalshi, mirpur10, shewrapara, farmgate, kuril, uttara], Total Weight: 35
        Route 8: [ecb, kalshi, mirpur12, shemoli, shewrapara, mirpur10, mirpur14, farmgate, kuril, uttara], Total Weight: 53
        Route 9: [ecb, kalshi, mirpur12, shemoli, shewrapara, farmgate, kuril, uttara], Total Weight: 45
        Route 10: [ecb, kalshi, mirpur12, mirpur10, mirpur14, farmgate, kuril, uttara], Total Weight: 38
        Route 11: [ecb, kalshi, mirpur12, mirpur10, shewrapara, farmgate, kuril, uttara], Total Weight: 38
        Route 12: [ecb, kuril, uttara], Total Weight: 15
-------------------------------------------------------------------------------------------------------------------------------------------------------
|2       |amjad hossain piash |24 Years    |123454         |kuril                  |b+                  |                    |4           |

        Route 1: [ecb, mirpur14, mirpur10, kalshi, mirpur12, shemoli, shewrapara, farmgate, kuril], Total Weight: 42
        Route 2: [ecb, mirpur14, mirpur10, mirpur12, shemoli, shewrapara, farmgate, kuril], Total Weight: 39
        Route 3: [ecb, mirpur14, mirpur10, shewrapara, farmgate, kuril], Total Weight: 26
        Route 4: [ecb, mirpur14, farmgate, kuril], Total Weight: 20
        Route 5: [ecb, kalshi, mirpur10, mirpur14, farmgate, kuril], Total Weight: 24
        Route 6: [ecb, kalshi, mirpur10, mirpur12, shemoli, shewrapara, farmgate, kuril], Total Weight: 37
        Route 7: [ecb, kalshi, mirpur10, shewrapara, farmgate, kuril], Total Weight: 24
        Route 8: [ecb, kalshi, mirpur12, shemoli, shewrapara, mirpur10, mirpur14, farmgate, kuril], Total Weight: 42
        Route 9: [ecb, kalshi, mirpur12, shemoli, shewrapara, farmgate, kuril], Total Weight: 34
        Route 10: [ecb, kalshi, mirpur12, mirpur10, mirpur14, farmgate, kuril], Total Weight: 27
        Route 11: [ecb, kalshi, mirpur12, mirpur10, shewrapara, farmgate, kuril], Total Weight: 27
        Route 12: [ecb, kuril], Total Weight: 4
-------------------------------------------------------------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------------------------------------------------------------------
```

Figure 3.7: Search blood group and see all possible route.

```
Search by Blood Group: b+
-------------------------------------------------------------------------------------------------------------
|SERIAL  |NAME               |AGE         |MOBILE NUMBER  |ADDRESS                |BLOOD GROUP         |LAST DONATED        |DISTANCE    |
-------------------------------------------------------------------------------------------------------------
|2       |amjad hossain piash |24 Years    |123454         |kuril                  |b+                  |                    |4           |

-------------------------------------------------------------------------------------------------------------
|1       |piash              |14 Years    |12345          |uttara dhaka           |b+                  |12/12/23            |15          |

-------------------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------------------------
```

Figure 3.8: Find nearest donor, its sorted according distance.

```
Please enter your choice:4
-------------------------------------------------------------------------------------------------------------
|SERIAL  |NAME               |AGE         |MOBILE NUMBER  |ADDRESS                |BLOOD GROUP         |LAST DONATED        |DISTANCE    |
-------------------------------------------------------------------------------------------------------------
|3       |hossain kabbo      |24 Years    |1456           |dohs                   |a+                  |15/12/23            |4
|2       |amjad hossain piash |24 Years    |123454         |kuril                  |b+                  |                    |4
|1       |ami piash          |12 Years    |123            |shewrapara             |AB+                 |12/12/24            |9

-------------------------------------------------------------------------------------------------------------
```

Figure 3.9: Update donor information.

```
Please enter your choice:8


Delete Serial Number: 1
```

Figure 3.10: Delete donor information here.

```
Please enter your choice:9
-------------------------------------------------------------------------------------------------------------------------
|SERIAL  |NAME              |AGE         |MOBILE NUMBER  |ADDRESS              |BLOOD GROUP         |LAST DONATED        |DISTANCE    |
-------------------------------------------------------------------------------------------------------------------------
|1       |ami piash         |12 Years    |123            |shewrapara           |AB+                 |12/12/24            |9           |
-------------------------------------------------------------------------------------------------------------------------

        1. Restore.

        2. Clear.

        3. Back.

       Please enter your choice:
```

Figure 3.11: Output of recycle bin.

```
-------------------------------------------------------------------------------------------------------------------------
|SERIAL  |NAME              |AGE         |MOBILE NUMBER  |ADDRESS              |BLOOD GROUP         |LAST DONATED        |DISTANCE    |
-------------------------------------------------------------------------------------------------------------------------
|1       |ami piash         |12 Years    |123            |shewrapara           |AB+                 |12/12/24            |9
|3       |hossain kabbo     |24 Years    |1456           |dohs                 |a+                  |15/12/23            |4
|2       |amjad hossain piash |24 Years    |123454         |kuril                |b+                  |                    |4
-------------------------------------------------------------------------------------------------------------------------
```

Figure 3.12: Restore the deleted information.

```
Please enter your choice:1


1. Blood Request.


2. Accepted.


3. Show All Requested.
```

Figure 3.13: Request for needed blood.

```
        Please enter your choice:1
-------------------------------------------------------------------------------------------------------------------------
|SERIAL  |NAME              |AGE         |MOBILE NUMBER  |ADDRESS              |BLOOD GROUP         |LAST DONATED        |DISTANCE    |
-------------------------------------------------------------------------------------------------------------------------

-------------------------------------------------------------------------------------------------------------------------

        Donor name: pat

        Age: 12

        Mobile Number: 123

        Address: mirpur14

        Blood group: A+

        Last Donated Date: 12/10/24
```

Figure 3.14: Added requesting information.

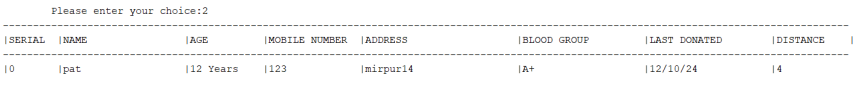

Figure 3.15: Accepting request here.

3.3 Results Overall Discussion

The blood donating system project, implemented in Java with algorithmic support, provides a robust platform for efficient donor registration, blood inventory management, and database integration. The system enhances user experience through a well-designed interface, ensuring secure and organized handling of donor information, contributing to the streamlined operation of blood banks and promoting a culture of voluntary blood donation.

3.3.1 Complex Engineering Problem Discussion

The current project displayed an impressive level of attention to detail and thorough discussion of challenging engineering issues. Every important factor was carefully researched and taken into account during the entire design process, from the very beginning to the very end. We took on a variety of tasks, such as developing a modern sleek effective demo program, and sustainable student project. The project demonstrates a strong and well-rounded approach by taking on these challenging engineering difficulties head-on, ensuring that all essential components for a successful travel management solution are provided here.

Chapter 4

Conclusion

4.1 Discussion

The Blood Donating System project developed using Java Algorithm provides a solid foundation for managing blood donations, inventory, and transfusion processes. By addressing the mentioned challenges and implementing potential improvements, the system can further enhance its functionality, performance, and user satisfaction. This project shows great potential for future development. Adding donor information, editing, and deleting donor information, will strengthen its comprehensive solution for donors by integrating additional services and personalized recommendations to ensure an improvement in the future.

4.2 Limitations

There are some limitations in project, such as -

- The exact location of individuals cannot be ascertained.
- Can't share their health condition with a doctor.
- An acceptor couldn't't give their requirements for finding a donor.
- It didn't give us a notification at an urgent moment.
- Users couldn't do any doctor consultancy..
- Don't have any Advice option on donating and accepting blood.
- Don't have Advanced UI/UX.
- It has Platform compatibility.
- A user can't share their opinion by using this.

4.3 Scope of Future Work

We will try to improve many features in our project in the near future, which are :

- We will try to set an interface that will inform us the exact location of an acceptor and donor.
- We will implement a chat application by which doctors and patients can communicate with each other.
- An acceptor would be able to give their requirements for finding a donor.
- It will notify us in an emergency situation.
- Try to enhance an option of check BMI and health condition.
- Try to implement and advice option for both doctor and patient.
- Try to use Advanced UI/UX.
- User will be able to share their opinion by using this program.

References

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