REAL TIME BLOOD BANK MANAGEMENT SYSTEM

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Abstract: Blood banks are meant to be effective, real-time blood management inside a blood bank is essential as well as to facilitate communication between multiple blood banks. However, real-time blood management is the main cause of problems for people nowadays. In this paper a mobile-based application is built to address these issues and provide a solution, this contains all relevant information on the amount of blood available in blood banks in real time. It also displays a map of the user's current location, allowing them to search for nearby blood banks.

Keywords— Dijkstra's shortest path algorithm

1. Introduction

With each passing year, the world's population expands, and with it, the number of diseases and health issues. The need for blood grows in tandem with population expansion. The importance of blood in modern medicine and healthcare cannot be overstated. Every second, someone will require blood to save their life. Blood transfusion is a life-saving procedure that is crucial to the overall treatment of patients in health-care systems. A Blood Transfusion Service's primary mission is to deliver a safe, adequate, and timely supply of blood or plasma components. Blood Transfusion should guarantee that the act of blood donation is safe and does not hurt the donor in order to fulfil this commitment. It is responsible for establishing and maintaining a secure environment, Ensure that commodities manufactured from donated blood are both safe and effective by taking all essential precautions. As a consequence, we offered a mobile application technology for blood banks to employ while using Map Location to track patients.

2. Existing system

There are several software solutions available for controlling BLOOD BANK inventories. Its learned, however, that the existing method had limitations. A flaw has been detected in the existing system. In a blood bank, there is presently no software in place to retain any records. It's tough to provide records quickly away in an emergency. Maintaining branch-related data

needed more human effort. Manually maintaining accounts is a demanding and dangerous task, and keeping such accounts in ledgers for a long period is considerably more onerous.

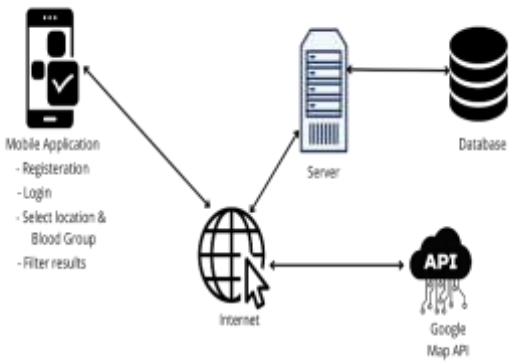
3. Proposed system

According on this considerations, Google Maps to highlight the locations of local blood banks are used byconsidering one of the most important responsibilities of a blood bank is to keep track about how much blood is available. The procedure for preserving the volume of blood in blood banks is carried out through such essential camps and is done in accordance with blood type.

Advantages

- People sometimes donate blood in order to receive money, but we keep a record that no one may donate blood more than once each month.
- To make the time-consuming task of keeping several papers easier.
- It will eliminate delays in getting blood and contacting people because everything will be done online and we will be able to contact them quickly.
- Finding blood groups will be simple and quick now that we've organised them in serial order and kept track of them in the system.
- It would also ensure that patients will not be charged more by the blood bank.
- Overall, it will save money and time for both the doctor and the patient, and it will save many lives.
- There is no need to schedule an appointment manually; you may schedule one online and the administrator will inform you of their appointment.

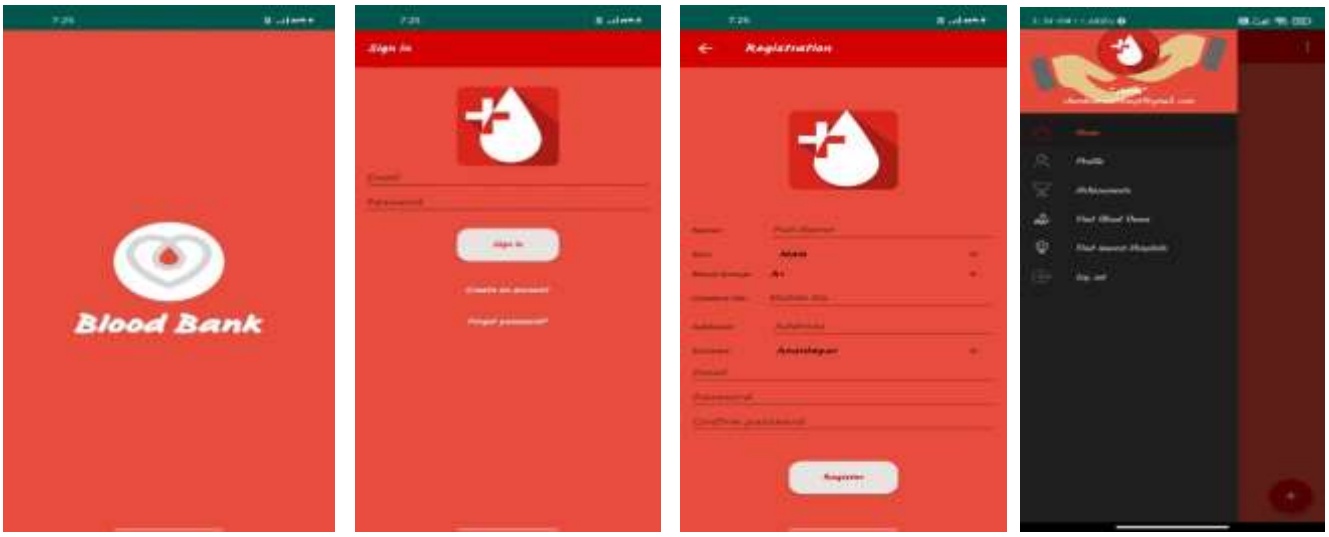
4. SYSTEM ARCHITECTURE



Module Description:

User:

- Splash Screen
- Login
- Registration
- Home
- My Profile
- Select Location
- Near hospitals
- Blood Banks
- Blood Quantity
- Map Location.



- Splash Screen: Application starting screen
- Login: Users may log into their accounts in a safe manner.
- Registration: The user can create their account.
- Home: Statements regarding features could be seen on the homepage.
- My profile: This option allows the users to view or update profile details like, mobile number and their Address.

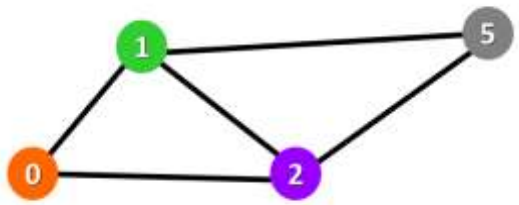
- Select Location: Select their Current Location.
- Near hospitals: Nearby Hospitals search the location.
- Blood Banks: Go to the nearest blood banks for the blood.
- Blood Quantity: how much quantity of blood we needed.
- Map Location: To hint the closest blood banks with the aid of using the Map location.

5. Methodology

Dijkstra's Shortest Path Algorithm

Key Concepts

Graphs represent computational models that show "interconnection" between two or more items. Nodes are the name for these elements. They are representations of real-world things, people, or entities. Edges are indeed the connections between nodes.

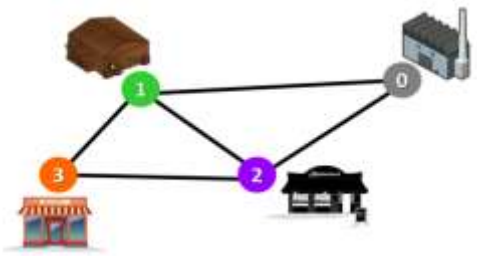


This is a graph's graphical representation:

Edges are indicated by lines that interconnect the nodes and vertices are indicated by coloured spheres.

6. Applications

Graphs may be immediately applied to real-life situations. For example, we may describe a transportation network using graphs, with nodes representing facilities that transmit or receive products and edges representing roads or pathways that connect them (see below).

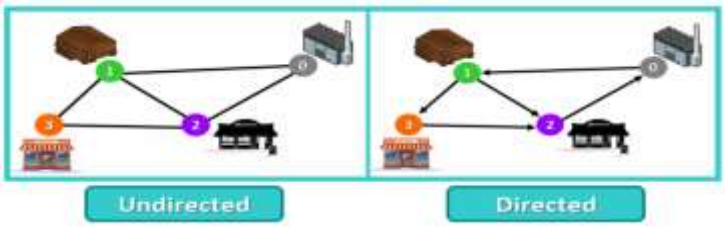


graph represents a network.

Graphs of many types

Undirected: if you could go from one node to the other in both directions for every pair of connected nodes.

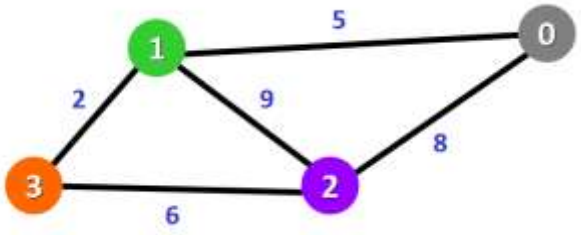
Directed: if you can only proceed from one connected node to another in a certain direction for each pair of connected nodes. To illustrate directed edges, we utilise arrows rather than simply lines.



Graphs with Weights

A weight graph is a graph with "weighted" or "costed" edges. An edge's weight can reflect distance, time, or anything else that represents the "relationship" between the nodes it connects.

A blue number appears next to each edge in the weighted graph below, for example. The weight of the relevant edge is represented by this number.



1) Create a set called sptSet (shortest path tree set) to keep count of the vertices in the shortest path tree, whose shortest distance from the source is computed and completed. This collection is approximately equal to zero.

2) Assign a distance value to each of the input graph's nodes. All range values should always be changed to Unbounded. Assign the origin vertex a distance value of 0 to ensure that it is chosen first.

3) sptSet does not include all vertices.

a) Choose a vertex u that is not in sptSet and has the shortest distance.

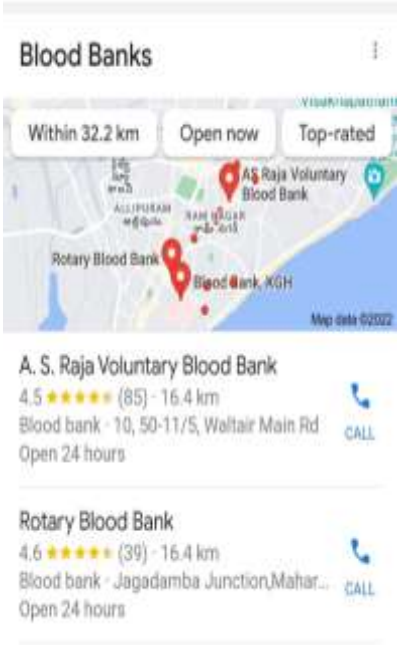
b) Add up to the sptSet.

c) Keep updating the distance between all of us neighbouring vertices. Iterate over all nearby vertices to modify the distance values. If the total of the distance value of u

(from source) as well as the weight of edge u-v is less than the distance value of v for each adjoining vertex v, then keep updating the maximum distance of v.

7. RESULTS AND CONCLUSION

Map location is used in this project to track the location. By implementing Dijkstra's shortest path algorithm as well. One can go to the nearby Blood banks based on the map location. It can also determine how much blood is available in the blood bank.



8. Reference

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