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BLOOD DONORS MATCHING SYSTEM USING HASHING ALGORITHM

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ABSTRACT :

Blood Donor Management System is an associate work that brings voluntary blood donors and those in need of blood to an emergency. The purpose of this paper is to develop a mobile application that will help the seekers to identify the blood donors near their location. The donors as well as the seekers have to register themselves by providing their basic details in the mobile application. When there is a need for blood, the person should raise a request through the mobile application that is visible to all donors. Then the seeker can also find the nearby blood banks. After the request is made by the seeker, the notification will be sent to all donors. And the donor can be able to accept or reject the request. Only if the donor wishes to donate the blood, his/herdetails will be shared with the seeker and also the seeker will be provided with the directions to reach the donor's location. The personal information of the donor will not be sent to the seeker without his/her knowledge ensuring data security. After the donation process is over, the donor can update the status. One Time Password is generated to authenticate the users while registering into the application.

Keywords: HIV, BD, blood donors, recipients, data security

I. INTRODUCTION :

The ever-growing population of the world In the day-to-day life, people come across a lot of requests on social media in need of blood for major causes due to accidents, injuries, organ transplants, etc.. The first thing the seeker's family does is search for blood in the blood bank. Even if the requested blood is available in the blood bank, the blood bank will ask for some units of blood as a replacement. The blood may or may not be of the same type, the aim is to provide replacement for the amount of blood that the blood bank donates. During this time, however, a donor is required to donate blood, and finding a potential donor in the hour of need is a tedious process. To ease the process of finding a matching donor, this paper proposes a mobile application that will play a major role. Both the seeker and the donor will be able to interact in the application. The seeker and donor can register themselves in the application. Seekers find for a particular blood group near their locality, when the request for blood is made by the seeker, it will be visible to all the donors in the nearby area. Only if the donor accepts the request to donate blood, the personal details of the donor will be displayed to the seeker. Until then the data is kept securely to avoid data breaches .

The demand for blood often outpaces supply. Whether it's for life-saving transfusions, surgeries, or treating chronic conditions, we need more blood than we can easily collect. And this challenge isn't just a local hiccup; it's a global symphony of need and goodwill.

Therefore, to achieve the requirement of blood for the recipients our blood donors matching system application would be helpful.

The donation process begins with a screening procedure to determine if the donor is healthy and has no conditions that would make his or her donation hazardous. Donors are asked about their general health, as well as their travel history and possible past exposure of blood-transmitted diseases, such as HIV, malaria, and hepatitis. A simple physical, including blood pressure, pulse rate, and temperature, is used to rule out other risks. This physical will also look for signs of any of the blood-transmitted diseases that might increase recipient risk. A simple laboratory measurement is used to make sure that the blood donation will not make the donor anemic.
If the donor is found suitable for donating blood, approximately one pint of blood is collected from an arm vein into a plastic bag. This is normally well tolerated by the donor, since the average donor's blood volume is about 11 pints. The donor will produce replacement fluid for the blood donation within 24 hours and red blood cells in four to six weeks. At least eight weeks between donations are therefore required for whole blood donations.
Considering **Recipient Safety,**Risks for a person receiving blood can be divided into several categories, which include reactions due to incompatible blood types, allergic reactions, and infections in the donated blood. By strictly adhering to standardized procedures, these risks have been reduced to a minimum.

II. LITERATURE STUDY :

reviews the literature related to the management of the blood donation (BD) system and classifies the research perspectives in this area.discusses the complexity of the blood donor management system and the challenges in finding blood donors in emergency situations. focuses on the individual, contextual, and network characteristics of blood donors and non-donors, with the goal of ensuring a safe and sufficient blood supply in the future. review the motivations, inhibitions, and practical evaluation of blood donation behavior. discusses recent intelligent approaches for managing and optimizing the blood donation process. reviews the recent developments in computer-based blood donor history screening.explores the current state of knowledge on the relationship between blood donor variability and blood component quality. discusses the need for automation in blood donor classification and notification techniques. provides insights into the age-related attitudes towards blood donation and the overall blood supply needs.

Drawbacks

Nevertheless, this approach may not be always feasible when the users accidentally accepts the request for O+ve when he/she is 0-ve as some people won't remember their blood type.
So it is adviseable to check the type of donor and if there is any transferable blood diseases like AIDS,HIV etc…

III. DEVELOPMENT OF BLOOD DONORS MATCHING SYSTEM USING HASHING ALGORITHM :

We in this paper, propose a reliable mobile application to that will help the seekers to identify the blood donors near their location

The main contributions in this project are:

The system aims to streamline the blood donation process, reduce waiting times for recipients, and easy accessibility of blood needed **(group based)** . The main goal of the system is to match blood donors to recipients as quickly and accurately as possible. Blood donors and recipients have specific attributes such as blood type, Rh factor, location, and medical history. The system should be able to hash these attributes to create a quick lookup mechanism.

The hashing algorithm is key to enabling fast searches. The attributes of donors and recipients will be used to create hash keys. The system can use these hash keys to retrieve and match donors quickly. A perfect hash function would minimize the chances of collisions and ensure that the retrieval process is fast. The algorithm hashes key attributes such as blood type, Rh factor, and location, enabling the system to identify potential matches with minimal processing time, even for large datasets. In addition to improving the overall efficiency of blood donor matching, this system is scalable, allowing it to handle a growing number of users while maintaining high performance through optimizations like **indexing**, **caching**, and potential use of **distributed hash tables**. This project demonstrates how modern algorithms and efficient data structures can be applied to critical healthcare services to improve the speed, reliability, and accessibility of life-saving resources.

Advantages:

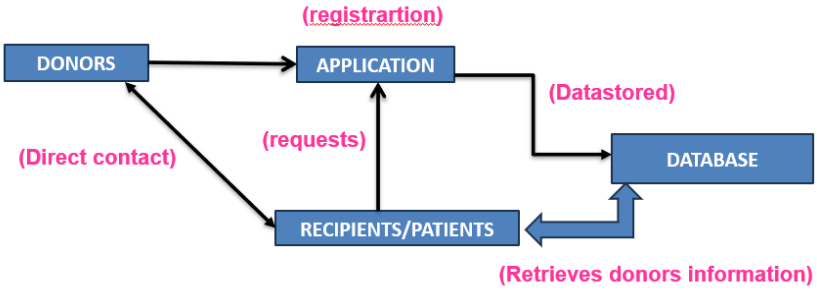
This system proposes an innovative approach to matching blood donors with recipients using a hashing algorithm. By storing donor and recipient information, the system enables fast and efficient lookup and matching times.
The hashing algorithm combines blood type and location to generate unique hash codes, allowing for rapid identification of compatible donors.

Module Design

- **Admin module**: Responsible for managing the overall system, including user accounts, blood bank inventory, and donation campaigns.
- **Donor module:** Allows donors to register, schedule appointments, and track their donation history.
- **Acceptor module:** Enables recipients to search for available blood and make requests.

The results also highlight the importance of designing an integrated and effective blood donation management system to address the urgent need for blood and improve the overall functionality of the blood bank.

Several studies have proposed the use of various technologies, such as data warehousing, SMS-based systems, and mobile crowdsourcing, to enhance the efficiency and accessibility of blood donor management systems.Overall, the module design of a blood donor management system should focus on streamlining the processes of donor registration, blood collection, inventory management, and blood distribution to ensure a reliable and responsive system that can meet the needs of both donors and recipients.



IV. RESULT AND DISCUSSION :

The implementation phase focuses how the system deals with, how data are to be structured, how procedural details are to be implemented, how interfaces are characterized, how the design will be translated into programming and how the testing will be performed. The methods applied during the development phase will vary but three specific technical tasks should always occur.

- The software design
- Code generation
- Software testing

V. CONCLUSION AND FUTURE ENHANCEMENT :

In this project, we have focused on Improving the overall quality management system of blood banks and donor management. This includes increasing awareness and knowledge among blood bank personnel. Enhancing the accessibility and user-friendliness of blood donor management systems. Incorporating feedback and input from various stakeholders, including donors, to continuously improve the blood donor management system. Exploring the use of emerging technologies, such as cloud computing, to revolutionize blood donor management.

Scope for Future Enhancement

We propose, Conducting further studies and replicating the results to validate and improve the efficiency of blood bank management systems.

REFERENCES :

[1] American society of hematology.
[2] BDonor: A Blood Donor Management System Using Mobile Crowdsourcing.