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Android Blood Donor Life Saving Application in Cloud Computing

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Abstract: - Emergency situations, such as accidents, create an immediate, critical need for specific blood type. In addition to emergency requirements, advances in medicine have increased the need for blood in many on-going treatments and elective surgeries. Despite increasing requirements for blood, only about 5% of the Indian population donates blood. In this paper we propose a new and efficient way to overcome such scenarios with our project. We have to create a new idea, just touch the button. Donor will be prompted to enter an individual's details, like name, phone number, and blood type. After that your contact details will appear in alphabetical order on the screen; the urgent time of a blood requirement, you can quickly check for contacts matching a particular or related blood group and reach out to them via Phone Call/SMS through the Blood donor App. Blood Donor App provides list of donors in your city/area. Use this app in case of emergency. A large number of blood donors are attracted using an Android application. Cloud- based services can prove important in emergency blood delivery since they can enable central and immediate access to donors' data and location from anywhere. Since almost everyone carries a mobile phone with him, it ensures instant location tracking and communication. The location-based app, operational on android platform, will help users easily find donors of matching blood groups in their location and access their mobile numbers for instant help. Only a registered person, with willingness to donate blood, will be able to access the service.

Keywords: - *Supply Chain Network, Web Service, Blood Donor App.*

I. INTRODUCTION

IN today's world, supply chains are more complex than ever before. Consumers' demand for new products as well as the still critical economic situation requires that companies, as well as organizations, be more innovative while also becoming more cost-effective in the procurement and Production of their products and services as well as in their delivery, However despite numerous significant achievements, the discipline of Supply Chain Management (SCM) is still incapable of satisfactorily addressing many practical, real-world challenges. The user's location will be detected using GPS. If there is need of blood, the donor with the required blood group is identified and notified of the requirement. The project includes algorithm which detects accurate location of the donors, identifies the donors who are available nearby to the location of requester and notifies them. If the identified donors are not available or not willing to donate blood at present then the scope of detection is increased. (This is done by increasing the scope of search).Notifying the donor about the need of the blood is the most important task of the system.

Examples of perishable goods include food and food products, medicines and vaccines, cut flowers, etc. The MIS of Blood Bank India keeps the name of the donor who is donating blood, a unique id through which the donor can view his account , password for accessing the account , date of birth of the donor because his age must be in the range of 18-60 years, gender status of the donor, blood group of the donor, weight of the donor, mobile no, email id, address, city, state, date of last blood donation when a new blood donor registered himself as a Blood Donor.

This project consists of an application which is present on the donors' android-phone, a website which acts as an interface for the users of the system and it also uses cloud for storing the donor's data.

II. BLOOD DONORSHIP

Major headings are to be column centered in a bold font without underline. A donor was donating a blood for storage at a blood bank or any other center for transfusion to an unknown recipient. These can occur at a number of locations including blood donation centers, mobile camps, mobile vans, etc. There a number of types of blood donations such as voluntary blood donation programmer. This is the safe and quality blood donation service as the blood collection from voluntary non remunerated blood donors is well-thought-out to be the safest. In order to enhance voluntary blood donation in developing countries like India [1] is based on well-defined frameworks and operational guide for organizations for this important activity. International healthcare research bodies have extensive frameworks that address context of blood management[2]. In developed countries there are dedicated organizations that have effective blood donor management processes. One such example is the U.S. department of defense (DOD), which uses an enterprise blood Management software that will manage the blood supply chain including donor management, blood collections, testing, distribution and transfusion. Additionally this also provides a proactive delivery of information and service through a web portal[3].

A. RelevantPeerResearch

Santhanam et al [4][5] extended the nominal definition based on a standard dataset to derive a CART[6] based decision tree model based on standard donor ship. This analysis helped identify the attributes that classify a regular voluntary donor (RVD) in the context of a standard dataset. This provided an extended RVD definition based on the donor definition (along with the application of CART) provides a standard model to determine the donor behavior and provides the capability to build a classification model. This additional nominal class can be easily computed based on the statistical definitions and help assist in decision making.

Chau et al[7] have extensively analyzed the linkages related to the blood donation to the location of the blood donation centers.This research was carried out using donor's past donation profiles to help setup a new blood donation center for the Hong Kong Red Cross.Their findings provide correlations between spatial distance and the incentive for the blood donors which is the uniqueness of this research. This specifically helps in the effective setup of centers with maximal donorship potential.

Bing et al[9] have extensively analyzed the working and implementation of blood bank information systems. Their research provides an extensive background of blood bank information systems. The research also talks about the importance of the decision making capability that is required for effectively running the operations in blood banks. The research also identifies various critical areas that are required for the systems to also have in order to enable decision making.

III. PROBLEM DEFINITION

In spite of the availability of the potential blood donors not more than 5% of the total Indian population donates blood.

Advancement in medical science has increased the blood demand. Also blood-donors usually don't come to know about the need for blood.

These reasons motivate us to develop a more efficient system that will assist the present blood donation system.

IV. FEASIBILITY STUDY

A. About the Dataset

The blood transfusion dataset is based on donor database of Blood Transfusion Service Center in Hsin-Chu City in Taiwan. The center passes their blood transfusion service bus to one university in Hsin-Chu City to gather blood donated about every three months. This dataset is derived from I- Cheng Yeh[6].

The data set consists of 847 donors from the cloud donor database. These 847 donor data, each one included R (Recency - months since last donation), F (Frequency - total number of donation), M (Monetary - total blood donated in c.c.), T (Time - months since first donation), and a binary variable representing whether he/she donated blood in December 2013 (1 stand for donating blood; 0 stands for not donating blood). There is an imbalance in that the people who have donated blood in 2013 accounts for only 54% in the dataset.

Table 1 Revised RVD confusion matrix

	TP Rate	FP Rate	Precision	Recall	F- Measure	ROC Area
Class0 (not RVD)	0.92	0	1	0.92	0.96	0.96
Class1 (RVD)	1	0.08	1	1	1	0.96
WeightedAvg.	1	0.08	1	1	1	0.96

This dataset has been extended to accommodate the following attributes. RVD a Boolean attribute that is computed based on the original attributes along with definitions [1]. Additionally geo-location information was added in the syntax of latitude:longitude. This was randomly assigned to locations in India for analysis. Please note the data used is to be considered only for demonstrative purposes.

V. PROPOSED SYSTEM

IF ((Frequency > 18.5 (times) AND Recency < 8.5 (months))
RVD = TRUE ELSE
RVD = FALSE
This is further analyzed by a perspective at the overall dashboard across the indicators and ranking the locations by scores. The algorithm for the dashboard is indicated as follows. Figure 2 provides the implementation of this algorithm.
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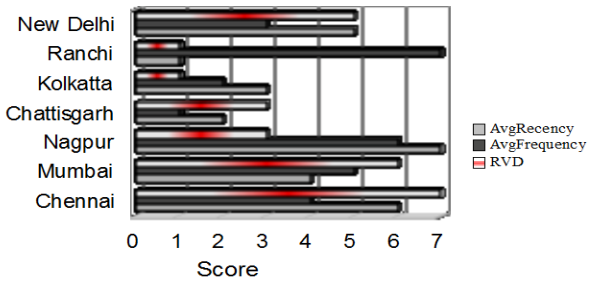

A. RVD SCORING ALGORITHM

Geo-location RVD Scoring Algorithm
Step 1: Loop through each unique location L (latitude, longitude) based on geographic division (such as state, District and city).
Step 2: For each location L compute the average frequency, average regency and total RVD count.
Step 3: Calculation of Location level summary scores for the regency, frequency and RVD across the locations.
The Recency Score (location) is computed as the Rank in descending.
The Frequency Score (location) is as the Rank in ascending.
The RVD Score (location) is computed as the Rank in ascending.
Step 4: Plot this score in the chart with scores on the X – Axis locations on the Y.
The results in comparison with the earlier model [5] reveal an improvement in the true positive rate for RVD class along with a delta increase in the false positive rate.

VI. FRAMEWORK

Registration

This registration maintains the details about donors. Then provide the user name and password. This login information provides the accessible permission to the user and restricts the unauthorized users. The system records:-

- Donor details and particulars;
- Donation history;
- Blood group details;
- Donor inquiries; and
- Donor Statistics Report.

Donor information

- Donor particulars information;
- Past history of blood donation results;
- Donor Donation counting;
- Blood constituents to be prepared; and
- Blood collection details.

Website management

We maintain the website to gather the blood donor's details such as registration details, donor's details and blood details. This website maintains the database up to date. This website appears in attractive and user friendly. The responsibility of this module is to capture donation details for Twine Blood Transfusion,

Mobile management

This module helps to manage and control mobile Blood Bank Movement or Programs and serves as marketing information collector. Its web-based feature works on anytime and anywhere concept and helps to capture data from the various locations. In this phase we list out the donor based on mobile GPRS services so easy to get the more information about donors in particular region.

VII. CONCLUSION

This project aims to create a web application known as cloud application for android mobiles. The sole purpose of this project is to develop a computer system that will link all donors. The system will help control a blood transfusion service and create a database to hold data on stocks of blood in each area as data on donors in each city. Furthermore, people will be able to see which patients need blood supplies via the website. They will be able to register as donors and thus receive an SMS from their local clients who needs blood to donate blood in cases of need. The website will help develop public awareness amongst its visitors of the hospitals' need for blood in order to supply the appropriate donors.

Future work will be focused on further enhancing these models to allow integration with blood donor management systems including innovative ways of visualization. The current implementation of the RVD model can also be implemented with other relevant attributes. Similar strategies can also be adopted for other healthcare domains.

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