A REVIEW ON CLOUD BASED ONLINE BLOOD BANK MANAGEMENT

USING CLOUD SERVER

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Secondly, we would also like to thank our friends who helped me a lot in finalizing this project within the limited time frame.

ABSTRACT

The process of managing the blood bank that is received from the blood donation events needs a proper and systematic management. The blood bank must be handled with care. The development of Blood Bank Management System (BBMS) is proposed to provide a management functional to the blood bank in order to handle the blood bag.

The technology platform in implementing this system uses JAVA programming environment and MySQL for SQL database. The system keeps the record of all the donors, recipients, blood donation programs, rejected bloods. For internal works and activities intranet is used and for interaction with public internet is used. This system also has the ability to keep track of the donor's donation records and the blood stock in the blood bank. This project intends to computerize the blood and donor management system in a blood bank in order to improve the record management efficiency due to the grown size of re

INTRODUCTION

Blood is an important factor that is very essential in the life of every organisms .Nowadays, we see that people lose their precious life without getting the blood at the right time due to improper contact of the blood donors. The software system is an online blood bank management system that helps in managing various blood bank operations effectively.

- Blood bank in hospital has a very important role. Blood bank ensures that blood supply of every blood type available all the time in case it needed urgently.
- Generally, also explain that blood bank system consists of an independent blood centre which is in charge in collecting, storing and distributing human blood.
- Indirectly, this has become an important matter to update blood supply and distribute the blood supply for those who need it.
- This population surely has high life expectancy rate. On their daily activities, accident may happen, or surgery could have been performed. Because of that, ready or not, hospital must prepare for extra blood

OBJECTIVES

To create awareness and solve all these problems this online blood bank app can be of great help as it provides required info in no time and also helps in quicker decision making .This also helps to motivate people for Blood Donation easily.

FEATURES

❖ User can send blood request and they can check donor's list.

❖ Management can organize Blood Donation Camps.

❖ Blood donors can register through online.

❖ Management can manage donor's database by recording their physical and medical statistics.

❖ Medically qualified management in blood bank for storage and issuance of blood.

❖ Blood request from one branch to another.

❖ Displays information about expired blood.

Details about Blood:

A) The Various constituents of blood are represented as follows

1) Plasma: The medium in which the blood cells are transported around the body. Plasma is the largest component of your blood, making up about 55% of its overall content. When isolated on its own, blood plasma is a light yellow liquid, similar to the colour of straw. Along with water, plasma carries salts and enzymes. The primary purpose of plasma is to transport nutrients, hormones, and proteins to the parts of the body that need it. Cells also deposit their waste products into the plasma. The plasma, in turn, helps remove this waste from the body. Blood plasma also ushers the movement of all the elements of blood through the circulatory system.

2) Red blood corpuscles- It carries oxygen. Haemoglobin is the protein inside red blood cells that carries oxygen. Red blood cells also remove carbon dioxide from your body, transporting it to the lungs for you to exhale. Red blood cells are made inside your bones, in the bone marrow. They typically live for about 120 days, and then they die.

3) Platelets- Which facilitates to blood clotting and also the need for blood transfusion. Platelets are only 20 % of the diameter red blood cells. The normal platelet count is 150,000-350,000 per microliter of blood, but since platelets are so small, they make up just a tiny fraction of the blood volume. The principal function of platelets is to prevent bleeding.

4) White blood corpuscles- Are the largest of the blood cells but also the fewest. There are only5,000 to 10,000 white blood cells per microliter. There are several different types of white cells but all are related to immunity and fighting infection.

5) Haemoglobin- This is an essential chemical in body and carries oxygen from lungs to other part of body. It is a protein in a red blood cell which contains iron. It is used to transport oxygen around the human body.

B) Need for Blood Transfusion:

Blood transfusions are very common. Each year, almost 5 million Americans need blood transfusions. This procedure is used for people of all ages. Many people who have surgery need blood transfusions because they lose blood during their operations. For example, about one-third of all heart surgery patients have a transfusion. Some people who have serious injuries – such as from car crashes, war, or natural disasters – need blood transfusions to replace blood lost during the injury.

C) Factors to be considered for blood donation:

A donor should be more than 18 years and less than 60 years. And the haemoglobin control should be morethan12.5g/dl. And weight should not be less than 45 kg's, and also the temperature of body and blood pressure should be normal. The donor should be free from all diseases and has not taken any medicine in last 48 hours. And also donor should not be affected by jaundice from past three years .And the donor should be not addicted to drugs.

D) Blood Types-

There are four blood types:

1. A,
2. B,
3. AB, or
4. O.

Every person has one of the above four blood types. In addition, each person's blood is either:

- Rh-positive, or
- Rh-negative.

So, for example, if a person has type A blood, it's either type A positive or type A negative.

Type O blood – universal donors

- Type O negative blood is safe for just about everyone. People with type O negative bloods are referred to as universal donors; and type O negative blood is used for emergencies in which there is no time to test a person's blood type.

Type AB blood – universal recipients

- Individuals who have type AB positive blood are referred to as universal recipients. This means that they can receive any type of blood. Rh-positive and Rh-negative
- People who have Rh-positive blood can receive Rh-positive or Rh-negative blood.
- If a person has Rh-negative blood, they should only receive Rh-negative blood.
- Rh-negative blood is used for emergencies when there is not time to test a person's Rh type.

Background of the problem:

The software system is an online blood bank management system that helps in managing various blood bank operations effectively. The project consists of a central repository containing various blood deposits available along with associated details hosted on windows based cloud server. These details include blood type, storage area and date of storage. These details help in maintaining and monitoring the blood deposits. The project is an online system that allows to check whether required blood deposits of a particular group are available in the blood bank efficiently using cloud server. Moreover the system also has added features such as patient name and contacts, blood booking and even need for certain blood group is posted on the website to find available donors for a blood emergency. This online system is developed on .net with azure cloud platform and supported by an sql database to store blood and user specific details..

User and Customer:

Blood is a saver of all existing lives in case of emergency needs. The task of blood bank is to receive blood from various donors, to monitor the blood groups database and to send the required blood during the need to the hospital in case of emergencies.

Online blood bank system using cloud computing, we can create a central repository for numerous blood deposits, including blood details and depositor information. The blood details would include blood type, storage area, and storage date to help maintain and monitor the blood depositors.

A. Users of the System

I. Administrator (this should be a general body, could be from central blood bank agency)
II. Blood Donors
III. Blood Banks, Hospitals, Clinics, etc.

B. Functional Requirements

- Administrator should have access to all details of blood donors

- Blood Banks , hospitals etc. could browse for blood donors in their nearby area and also the search result should Provide only those donors who have not donated blood in last 3 months

- Blood donors should be asked to give feedback of the health report of donors (on basis of their blood taken), for Future consideration after the blood donation is being made by donor.

- No user could access any details of donors without being a member of website. Only hospitals, blood banks etc. should be able to see the contact details of donors.

- Blood donor should be allowed to see only the name and region they live in. Also if they need to ask another blood donor for any blood donation help it should be through admin and proper reason for which there should be a form to be filled by donor.

Statement of the Problem :

The following problem arises when using a typical blood bank's existing system:

- ***Personal profile accessibility (P1)***

  The donor's information can only be updated by the administrators of the blood Bank. A donor can update their information by calling, faxing, e-mailing, but not by Themselves. This is a waste of time just for updating a piece of information and it may be troublesome for some donors.

- ***Lost or damaged card (P2)***

  A typical membership card can easily get damaged if it is exposed to the sunlight or weather and this causes to ruin the card's barcode which is significantly important for retrieving records. If the card gets lost or stolen, the donor has to make a replacement card to keep their membership at the blood bank.

- ***Donation record accessibility (P3)***

  The donor ID card is the only tangible evidence that contains the donor's recent donation records, if the card gets lost, donors may find it difficult to schedule their next appointment since they are not able to see the last time they had donated blood.

- ***Blood result notifications (P4)***

  After the process of blood donation, the donor will receive a card that only contains their name and blood type. They will not be notified of their blood result unless they request that information from the blood bank.

- ***Blood stock management (P5)***

  Blood banks are required to maintain account of blood bags in the inventory. This increases with each blood donation recorded in our system, and decreases as they are checked out upon hospital requests. Our system will need to keep the information up-to-date to ensure correctness of the inventory.

- ***Mailing by postal system (P6)***

  Blood banks will only mail donors when the donated blood is disqualified, however, this mail is sent through the postal system to the donor's given address. If the donor's address is recorded incorrectly, the mail will be sent to the wrong address and the donor will never be notified that their blood is rejected and given the reason for that.

Proposed System

The user has to first download the application. He/she will be provided with two options: Login and sign in. If the person has already registered, then he/she has to login. If not, he/she has to create an account providing basic details like name, address, contact, date of birth, blood group, email id etc. The user is allowed to update his/her information. Once the user registers, he/she can check various blood banks that are located. The user will get various options on screen:

- Blood camps
- Search donors
- Search blood banks
- Request for blood
- Nearby hospital
- View notification
- Emergency contact details

The proposed system consists of the following goals and has the scope as follows:

a) Goals:

- To ease the process of blood donation and reception.
- To improve the existing system.
- To develop a scalable system.
- To be highly available.

b) Scope:

- Ensure that all the functionalities of a manual blood bank are covered
- To include all the blood banks at least within a city.
- Make sure the program is simple and easy to use

How is it unique compared to any existing solutions:

Cloud computing has been around for approximately two decades and despite the data pointing to the business efficiencies, cost-benefits, and competitive advantages it holds, a large portion of the business community continues to operate without it.

The main advantage of a blood bank management system is easy and effective information retrieval. Hence, the staff can view precise information quickly. The staff can now store all the details in the blood bank management system. Therefore, they can get rid of the manual procedures.

There are three categories of beneficiaries. These are,

1. **Donors:**
   A donor is the one who donates blood voluntarily at the blood bank or donation camp. The information system also keeps the record of the donors who register online for blood donation.

2. **Patients:**
   The patient is the one who requires blood from the hospital due to accidents, surgeries, delivery, or any other medical conditions.

3. **Blood centre:**
   This refers to the staff working at the blood bank that includes staff members, operators, blood centre in charge, head of pathological department

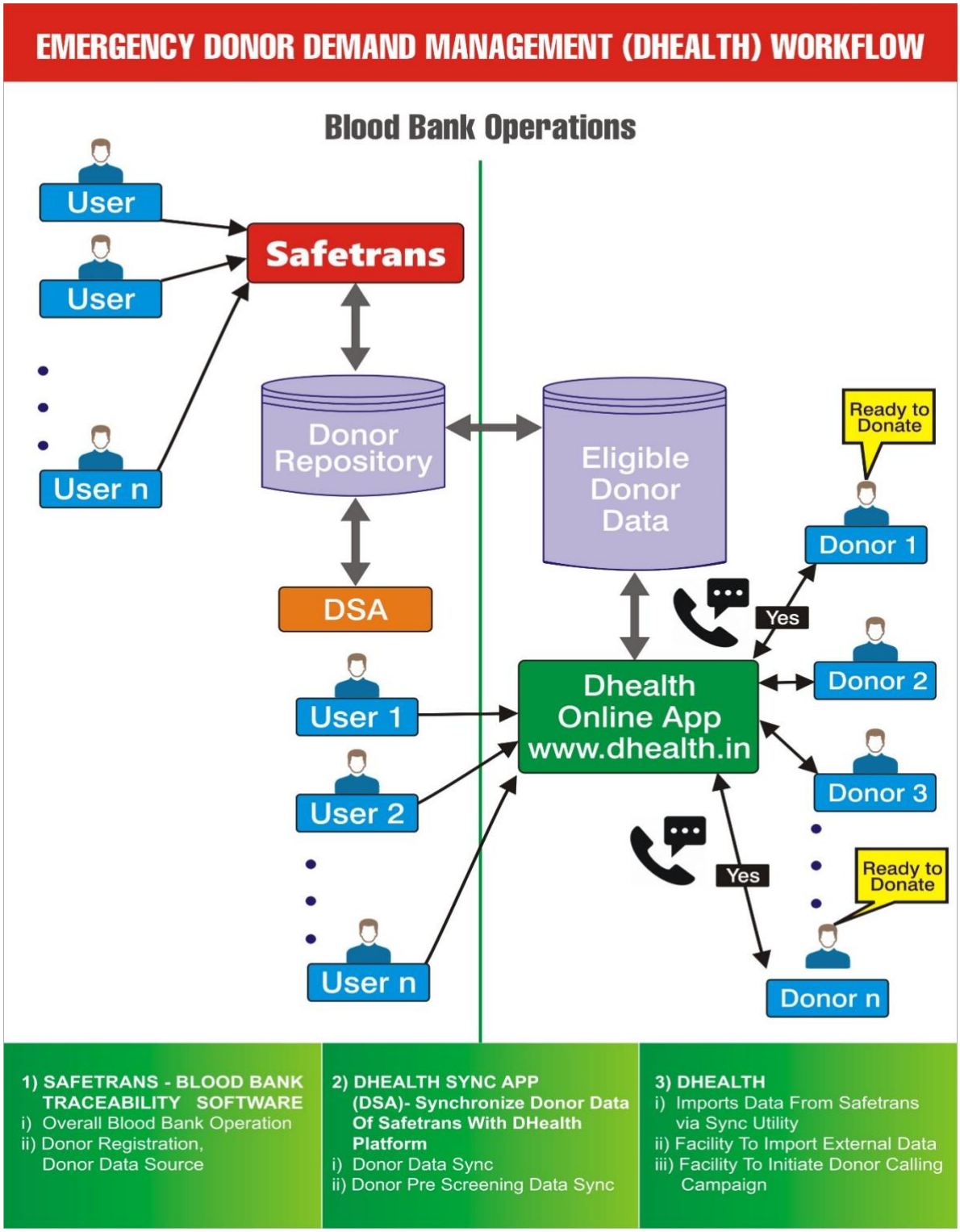
EXISTING SYSTEM

As per the information obtained from BLOOD BANK and HOSPITAL we had understood the following working system of blood bank. There is growing need of blood but one cannot produce blood in laboratory. Blood bank and hospital are depending on the blood donated by the donors. So to promote donors to donate blood. Blood bank and hospital organize blood donation Camps or one can call donors by calling them by the Phone number provided by the donor in the form. The existing system is the manual system in which the donors first visit the hospital and checks for following factors.

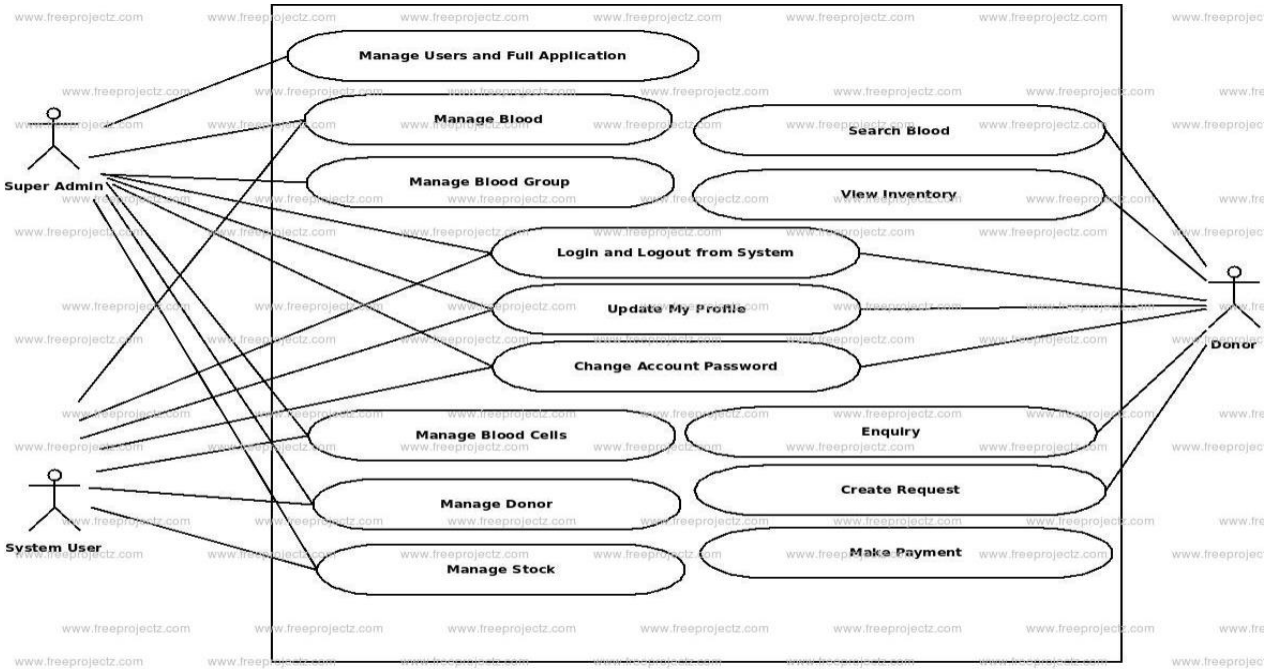
- Filling up the form
- Donating blood
- Searching record

Logical Design :

Work Flow:



Use case Diagram:



Usecase Diagram of Blood Bank Management System

Algorithms to be used :

Insertion in database-

1. Take input from user from textbox
2. Convert into text
3. Select the table to insert values.
4. Insert value into respective columns.
5. Exit

Retrieval from Database-

1. Select the table to retrieve values from.
2. Search for the column
3. Search for the value to be retrieved.
4. Print the value.
5. Exit

Project Implementation :

Bloodbank.java

```
package bloodbank;
public class Bloodbank
{
public static void main(String[]  args)
 {
// TODO code application logic here
first m=new first();
m.setVisible(true);
}}
```

Details.java

```
package bloodbank;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import javax.swing.table.DefaultTableModel;
```

```
public class details extends javax.swing.JFrame {
public details()
 {
initComponents();
setLocationRelativeTo(null);
}
void no()
{
String r=t1.getText();
try
Class.forName(“com.mysql.jdbc.Driver”);
Connection cn=DriverManager.getConnection(“jdbc:mysql:
///bloodbank”,”root”,”06547879”);
DefaultTableModel d1=(DefaultTableModel)table1.getModel();
DefaultTableModel d2=(DefaultTableModel)table2.getModel();
String sn = null;
String e=null;
sn=”select * from newdonorr where no=”+r;
e=”select * from sell where no=”+r;
PreparedStatement smt=cn.prepareStatement(sn);
ResultSet rs=smt.executeQuery();
while(rs.next())
{
```

```
String a1=rs.getString(1);
String a2=rs.getString(2);
String a3=rs.getString(3);
String a4=rs.getString(4);
String a5=rs.getString(5);
String a6=rs.getString(6);
String a7=rs.getString(7);
String a8=rs.getString(8);
String a9=rs.getString(9);
Object pc1[]={a1,a2,a3,a4,a5,a6,a7,a8,a9};
d1.addRow(pc1);
}
smt=cn.prepareStatement€;
ra=smt.executeQuery();
while(rs.next())
{
System.out.println(“hello”);
String b1=rs.getString(1);
String b2=rs.getString(2);
String b3=rs.getString(3);
String b4=rs.getString(4);
String b5=rs.getString(5);
Object pc2[]={b1,b2,b3,b4,b5};
```

```
d2.addRow(pc2);
}
}
catch(Exception e)
{
System.out.println(e);
}
}@SuppressWarnings(“unchecked”)
// <editor-fold defaultstate=”collapsed” desc=”Generated Code”>
private void initComponents() {
jScrollPane1 = new javax.swing.JScrollPane();
table1 = new javax.swing.JTable();
jScrollPane2 = new javax.swing.JScrollPane();
table2 = new javax.swing.JTable();
jButton1 = new javax.swing.JButton();
jLabel1 = new javax.swing.JLabel();
t1 = new javax.swing.JTextField();
setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CL
OSE);
table1.setModel(new javax.swing.table.DefaultTableModel(
new Object [][] {
},
New String [] {
```

```
“no”, “name”, “sex”, “age”, “group”, “date”, “country”, “city”,
“mobile”
}
));
jScrollPane1.setViewportView(table1);
table2.setModel(new javax.swing.table.DefaultTableModel(
new Object [][] {
},
new String [] {
“No”, “Name”, “Address”, “Mobile”, “Date”
}
));
jScrollPane2.setViewportView(table2);
jButton1.setText(“Details”);
jButton1.addActionListener(new java.awt.event.ActionListener() {
public void actionPerformed(java.awt.event.ActionEvent evt) {
jButton1ActionPerformed(evt);
}
});
jLabel1.setFont(new java.awt.Font(“Tahoma”, 1, 18)); // NOI18N
jLabel1.setText(“Enter No”);
javax.swing.GroupLayout layout = new
javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
```

```
layout.setHorizontalGroup(
layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(layout.createSequentialGroup()
.addGap(0, 0, Short.MAX_VALUE)
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
.addGroup(javax.swing.GroupLayout.Alignment.LEADING,
layout.createSequentialGroup()
.addGap(179, 179, 179)
.addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 110,
javax.swing.GroupLayout.PREFERRED_SIZE)
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
.addComponent(t1, javax.swing.GroupLayout.PREFERRED_SIZE, 86,
javax.swing.GroupLayout.PREFERRED_SIZE))
.addComponent(jScrollPane1,
javax.swing.GroupLayout.PREFERRED_SIZE,
Javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(layout.createSequentialGroup()
```

```
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)


.addComponent(jScrollPane2,
javax.swing.GroupLayout.PREFERRED_SIZE, 365,

Javax.swing.GroupLayout.PREFERRED_SIZE))

.addGroup(layout.createSequentialGroup()

.addGap(34, 34, 34)

.addComponent(jButton1)))

.addContainerGap())

);

layout.setVerticalGroup(

layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(layout.createSequentialGroup()

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)

.addComponent(jScrollPane1, javax.swing.GroupLayout.DEFAULT_SIZE, 361,

Short.MAX_VALUE).addComponent(jScrollPane2,
javax.swing.GroupLayout.PREFERRED_SIZE,

0, Short.MAX_VALUE))

.addGap(36, 36, 36)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
```

```
.addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE,
29,
Javax.swing.GroupLayout.PREFERRED_SIZE)
.addComponent(t1, javax.swing.GroupLayout.PREFERRED_SIZE, 29,
javax.swing.GroupLayout.PREFERRED_SIZE)
.addComponent(jButton1))
.addGap(0, 22, Short.MAX_VALUE))
);
pack();
}// </editor-fold>
Private void jButton1ActionPerformed(java.awt.event.ActionEvent evt)
{
this.no();
}
/**
```

- @param args the command line arguments

```
*/
public static void main(String args[]) {
/* Set the Nimbus look and feel */
//<editor-fold defaultstate=”collapsed” desc=” Look and feel setting
code (optional) “>
/* If Nimbus (introduced in Java SE 6) is not available, stay with the
default look and feel.
try {
for (javax.swing.UIManager.LookAndFeelInfo info :
```

```
javax.swing.UIManager.getInstalledLookAndFeels()) {
if (“Nimbus”.equals(info.getName())) {

javax.swing.UIManager.setLookAndFeel(info.getClassName());
break;
}
}
} catch (ClassNotFoundException ex) {
java.util.logging.Logger.getLogger(details.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
} catch (InstantiationException ex) {
java.util.logging.Logger.getLogger(details.class.getName()).log(java.util.logging.Level.SEVERE,null, ex);
} catch (IllegalAccessException ex) {
java.util.logging.Logger.getLogger(details.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
} catch (javax.swing.UnsupportedLookAndFeelException ex) {
java.util.logging.Logger.getLogger(details.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
}
//</editor-fold>
/* Create and display the form */
java.awt.EventQueue.invokeLater(new Runnable() {
public void run() {
new details().setVisible(true);
```

```
}
});
}

// Variables declaration – do not modify
private javax.swing.JButton jButton1;
private javax.swing.JLabel jLabel1;
private javax.swing.JScrollPane jScrollPane1;
private javax.swing.JScrollPane jScrollPane2;
private javax.swing.JTextField t1;
private javax.swing.JTable table1;
private javax.swing.JTable table2;
// End of variables declaration
}
```

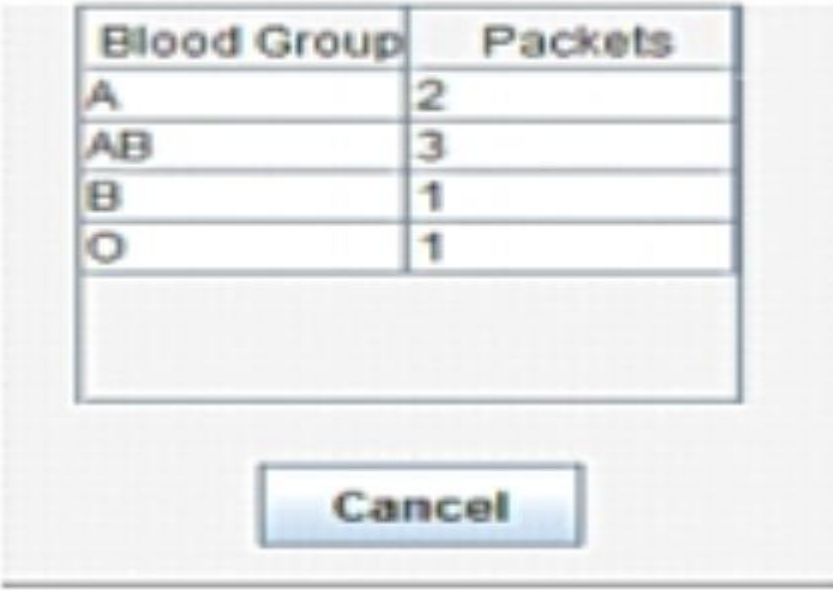
Output

Home Page:

Donors Details Form

Search By Window

No of Available packets



SCOPE OF PROJECT

The Scope of the project is that in a very short span it provides user with many facilities. It provides an elegant management of blood, list of hospitals, blood banks and donors online. The main purpose of this project is to interconnect all the blood banks, hospitals, donors into a single network, validation, store various data and information of blood and health of each individual. This system is used to store data over a centralized server which consists of database where the individual information cannot be accessed by a third party. It also provides effective:

- Blood donation management
- Blood safety
- Blood and blood component production.
- Blood and blood component storage and distribution
- Online platform for health check up
- Eradicate Corruption In Blood Distribution

APPLICATIONS

- All the process of submission of registration form is quite simple.
- Department can contain information regarding various blood groups.
- People can get registration by sitting at home.
- Donors can view the blood donation camp organising at the different places.
- Donor can also check his blood group medical story whether it is healthy or unhealthy.
- Seeker can get the information of the particular blood group accessible in the blood bank.
- Seeker can get the blood units according to his requirement from the blood bank.
- The probability of error should be minima
- Blood storage and effective blood management.
- Healthy blood will be provided.

REQUIREMENT ANALYSIS

HARDWARE REQUIREMENTS:

- 1 GB RAM.
- 200 GB HDD
- Intel 1.66 GHz Processor Pentium 4

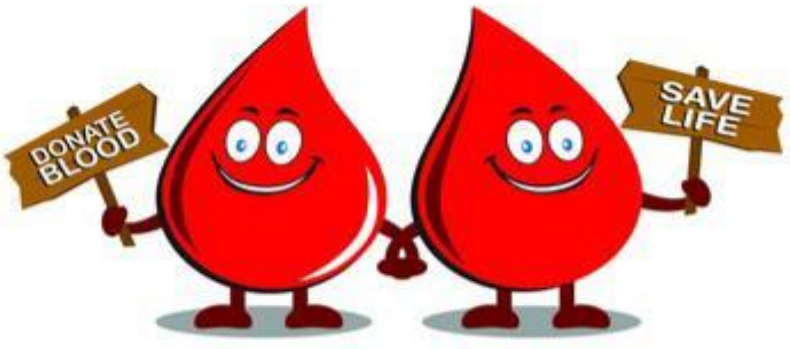
SOFTWARE REQUIREMENTS:

- Windows XP, Windows 7,8
- Visual Studio 2010
- ANDROID Studio
- Windows Operating System

Conclusion

Technology is introducing new innovations day by day, thus reducing the time required to do things. The proposed system can be used to reduce the time required to deliver required blood to the needy in cases of emergency.

Our Project is a humble venture to satisfy the needs in a blood bank to manage their stock, inventory. several user-friendly coding have also been adopted. This package shall prove to be a powerful package in satisfying all requirements of blood bank. The objective of software planning is to provide a frame work that enables the manager to make reasonable estimates made within a limited time frame at beginning of software project and should be updated regularly as project progresses.



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