Code Review of The Software Project: Blood Management System

Course Name: Software Development Project

Course No: CSE 3106

Submitted to:

Dr. Amit Kumar Mondal

Associate Professor

Computer Science & Engineering Discipline

Group Members:

1. Sourav Shome(210217)
2. Pushpita Chakma (210240)
3. Mst. Eshrat Jahan Esha(210233)

Magic Numbers: The color values in jPanel2.setBackground(new java.awt.Color(255, 51, 51)); and other places should be replaced with named constants to make the code more readable. (Home.java)

UI Logic in Main Class: The main method directly sets the look and feel, which could be encapsulated in a utility or initialization method.

Hardcoded URLs: The URL in Desktop.getDesktop().browse(new URI("https://badhan.org/")); is hardcoded. This should be configurable or abstracted away. (Home.java)

Code Duplication: The method btnClearActionPerformed contains repetitive code to clear text fields. This can be refactored to avoid redundancy. (Doner.java)

File Handling: Direct file handling within the Swing application can be risky. Consider using a more robust data storage solution or at least handle file exceptions more gracefully.

Unnecessary Comments: Remove commented-out code or irrelevant comments to clean up the codebase.

Data Storage: Data is stored in both binary (file.bin) and text (data.txt) formats. This redundancy could lead to inconsistencies and should be avoided.(Doner.java)

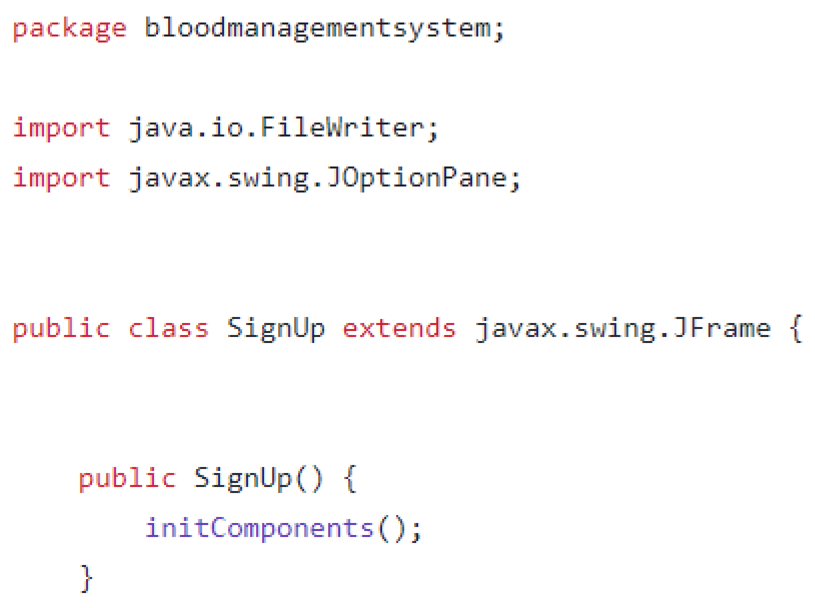
Error Handling: There is a lack of proper error handling, especially when dealing with file I/O operations.

Naming Convention: Class name DonorList suggests a collection or utility, but the class seems to be a JFrame. A more appropriate name would be DonorListFrame or similar.

Unnecessary Casts: The line Vector<Vector> tableData = (Vector<Vector>)input.readObject(); has an unnecessary cast.(DonorTable.java)

Direct UI Manipulation: Directly adding rows to a table from a file is not very scalable or maintainable. Consider separating the data retrieval logic from the UI update.

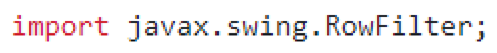
Lack of Encapsulation: The SignUp class contains both GUI setup logic (initcomponents()) and business logic (handling user sign-up and writing data to a file). This violates the Single Responsibility Principle (SRP), as the class is responsible for more than one thing



```
package bloodmanagementsystem;

import java.io.FileWriter;
import javax.swing.JOptionPane;


public class SignUp extends javax.swing.JFrame {


    public SignUp() {
        initComponents();
    }
```

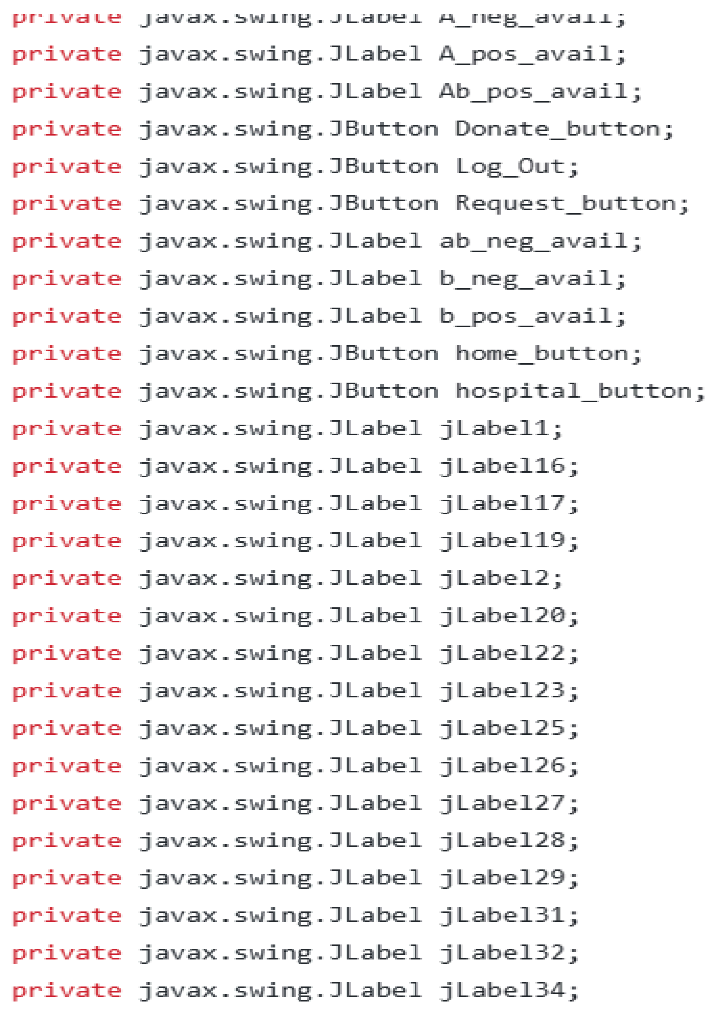
Method Length: The Ok_buttonactionperformed method is relatively long and contains multiple responsibilities, such as retrieving input values, writing data to a file, and displaying a success message. Breaking down this method into smaller, more focused methods can improve readability and maintainability.

Unused Imports: The code includes unused imports (import javax.swing.RowFilter), which should be removed to keep the code clean.



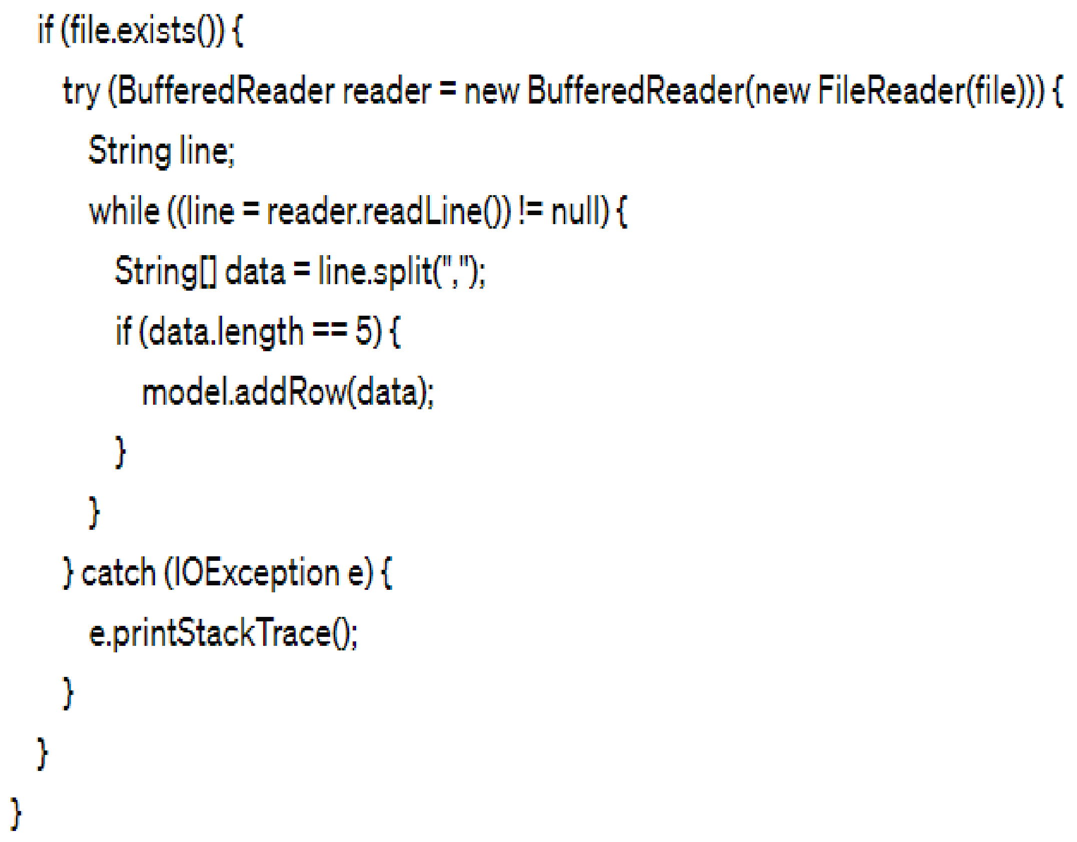
```
import javax.swing.RowFilter;
```

Non-Descriptive Variable Names: Variable names like jPanel1, jLabel1, jTextField1, etc., are not very descriptive. Using more meaningful names can improve code readability.



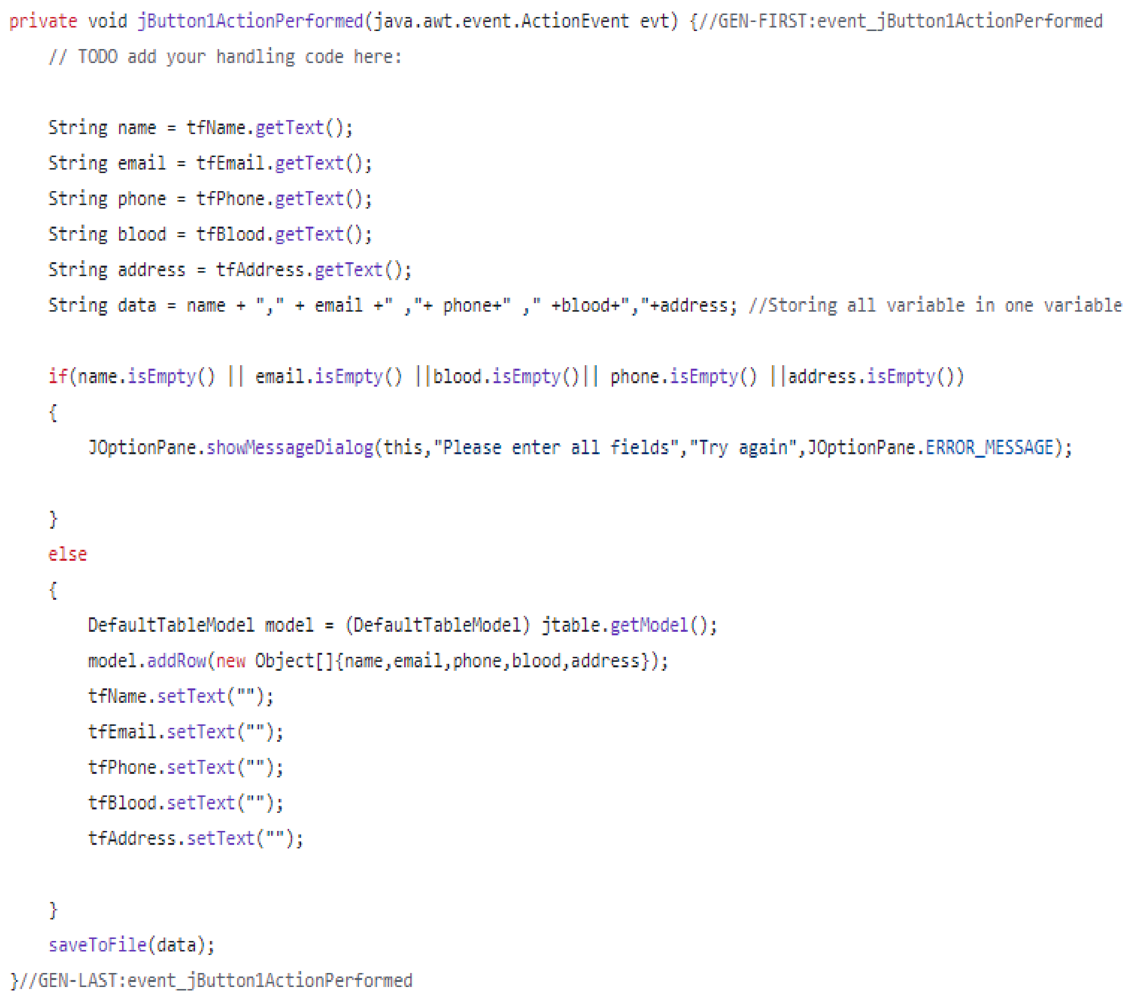
```
private javax.swing.JLabel A_neg_avail;
private javax.swing.JLabel A_pos_avail;
private javax.swing.JLabel Ab_pos_avail;
private javax.swing.JButton Donate_button;
private javax.swing.JButton Log_Out;
private javax.swing.JButton Request_button;
private javax.swing.JLabel ab_neg_avail;
private javax.swing.JLabel b_neg_avail;
private javax.swing.JLabel b_pos_avail;
private javax.swing.JButton home_button;
private javax.swing.JButton hospital_button;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel16;
private javax.swing.JLabel jLabel17;
private javax.swing.JLabel jLabel19;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel20;
private javax.swing.JLabel jLabel22;
private javax.swing.JLabel jLabel23;
private javax.swing.JLabel jLabel25;
private javax.swing.JLabel jLabel26;
private javax.swing.JLabel jLabel27;
private javax.swing.JLabel jLabel28;
private javax.swing.JLabel jLabel29;
private javax.swing.JLabel jLabel31;
private javax.swing.JLabel jLabel32;
private javax.swing.JLabel jLabel34;
```

Inconsistent Formatting:
The code contains inconsistent formatting practices, such as varying indentation levels and spacing. Consistent formatting improves code readability and maintainability.



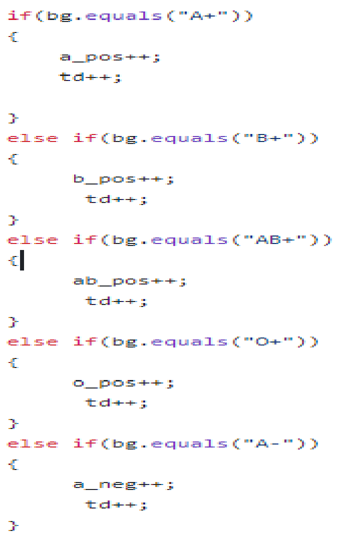
```
  if (file.exists()) {
    try (BufferedReader reader = new BufferedReader(new FileReader(file))) {
      String line;
      while ((line = reader.readLine()) != null) {
        String[] data = line.split(",");
        if (data.length == 5) {
          model.addRow(data);
        }
      }
    } catch (IOException e) {
      e.printStackTrace();
    }
  }
}
```

Large Functions & Class :

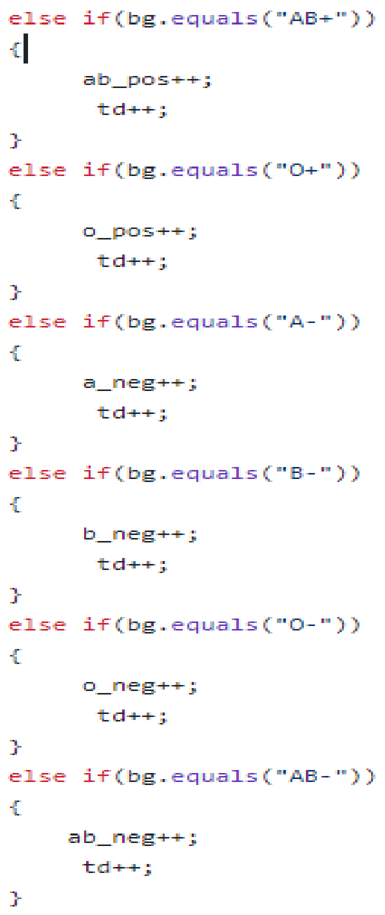


```
private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {//GEN-FIRST:event_jButton1ActionPerformed
    // TODO add your handling code here:

    String name = tfName.getText();
    String email = tfEmail.getText();
    String phone = tfPhone.getText();
    String blood = tfBlood.getText();
    String address = tfAddress.getText();
    String data = name + "," + email +" ,"+ phone+" ," +blood+","+address; //Storing all variable in one variable

    if(name.isEmpty() || email.isEmpty() ||blood.isEmpty()|| phone.isEmpty() ||address.isEmpty())
    {
        JOptionPane.showMessageDialog(this,"Please enter all fields","Try again",JOptionPane.ERROR_MESSAGE);

    }
    else
    {
        DefaultTableModel model = (DefaultTableModel) jtable.getModel();
        model.addRow(new Object[]{name,email,phone,blood,address});
        tfName.setText("");
        tfEmail.setText("");
        tfPhone.setText("");
        tfBlood.setText("");
        tfAddress.setText("");

    }
    saveToFile(data);
}//GEN-LAST:event_jButton1ActionPerformed
```

Large no of if else statements:



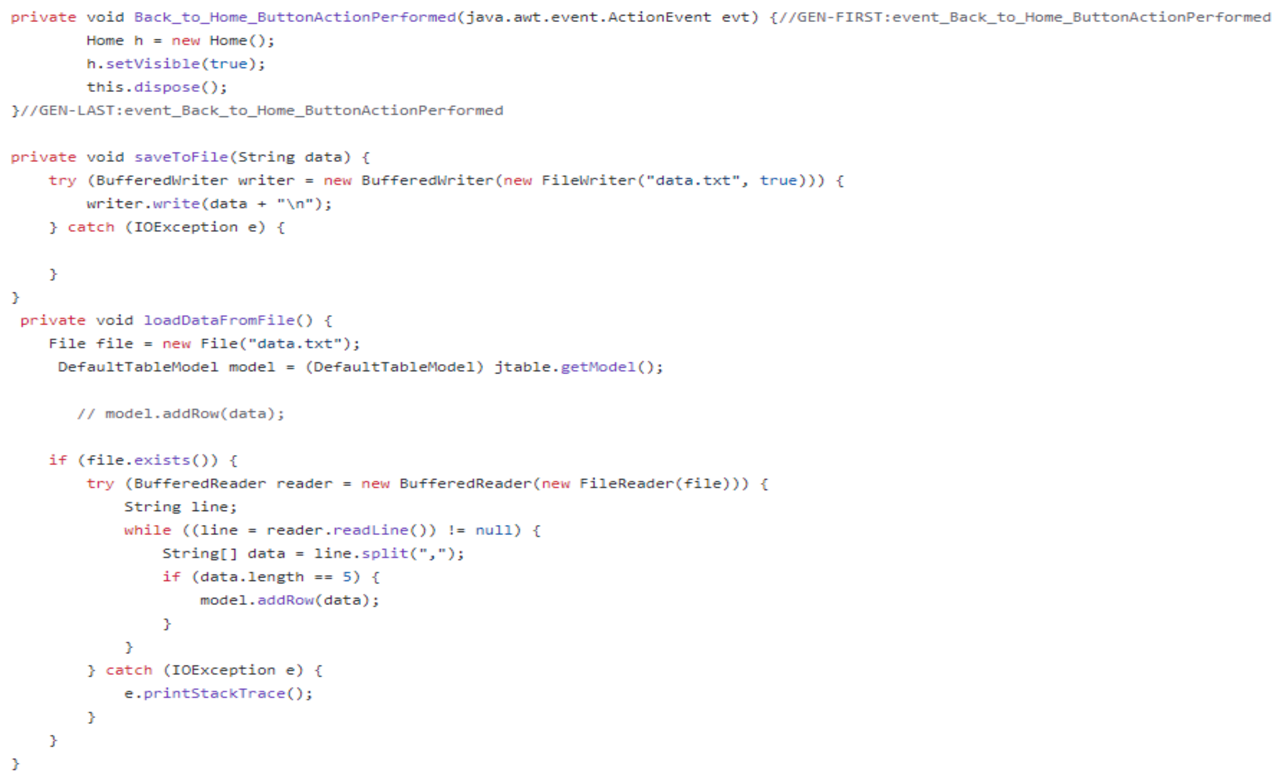
```
if(bg.equals("A+"))
{
     a_pos++;
     td++;

}
else if(bg.equals("B+"))
{
       b_pos++;
        td++;
}
else if(bg.equals("AB+"))
{
       ab_pos++;
        td++;
}
else if(bg.equals("O+"))
{
       o_pos++;
        td++;
}
else if(bg.equals("A-"))
{
       a_neg++;
        td++;
}
```



```
else if(bg.equals("AB+"))
{
       ab_pos++;
        td++;
}
else if(bg.equals("O+"))
{
       o_pos++;
        td++;
}
else if(bg.equals("A-"))
{
       a_neg++;
        td++;
}
else if(bg.equals("B-"))
{
       b_neg++;
        td++;
}
else if(bg.equals("O-"))
{
       o_neg++;
        td++;
}
else if(bg.equals("AB-"))
{
     ab_neg++;
      td++;
}
```

Lack of Comments:

The code lacks comments to explain the purpose of certain sections of code or complex logic. Adding comments can improve code understandability, especially for other developers or for future reference.



```
private void Back_to_Home_ButtonActionPerformed(java.awt.event.ActionEvent evt) {//GEN-FIRST:event_Back_to_Home_ButtonActionPerformed
        Home h = new Home();
        h.setVisible(true);
        this.dispose();
}//GEN-LAST:event_Back_to_Home_ButtonActionPerformed

private void saveToFile(String data) {
    try (BufferedWriter writer = new BufferedWriter(new FileWriter("data.txt", true))) {
        writer.write(data + "\n");
    } catch (IOException e) {

    }
}
 private void loadDataFromFile() {
    File file = new File("data.txt");
     DefaultTableModel model = (DefaultTableModel) jtable.getModel();

       // model.addRow(data);

    if (file.exists()) {
        try (BufferedReader reader = new BufferedReader(new FileReader(file))) {
            String line;
            while ((line = reader.readLine()) != null) {
                String[] data = line.split(",");
                if (data.length == 5) {
                    model.addRow(data);
                }
            }
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```

- **Refactoring:** There are some code duplication that could be reduced by extracting common functionality into methods.

- **Error Handling:** More comprehensive error handling could be implemented to handle cases such as invalid input data.

- **User Interface:** Enhancing the UI design and adding labels for input fields could improve usability.

- **Comments:** Adding comments to explain complex logic or to provide context would improve code readability.

- **Naming:** Using more descriptive variable names can make the code easier to understand.