OBJECT ORIENTED PROGRAMMING ASSIGNMENT (CS-F213)

TOPIC:
e-Quiz Management System in JAVA

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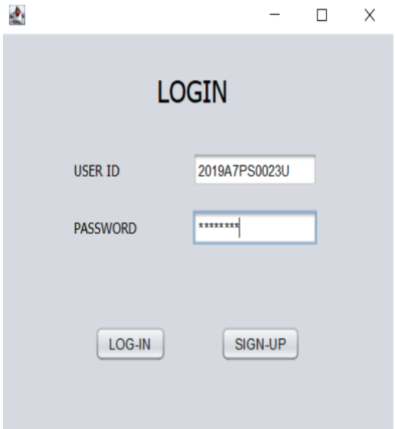
INTRODUCTION:

The program given below is student/faculty exam management system, using this faculty of any specific course can create a questionnaire and students can answer it, a brief explanation of the workflow of the program is given below.

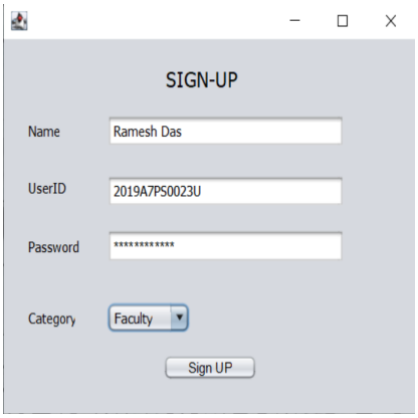
Upon running the **login.java** file this, known as **Jframe**, depending upon the user whether student or faculty he/she would have to enter their credentials, if they have not created their account, they can do so by clicking sign up

Now once they click sign up, they will be redirected to this page

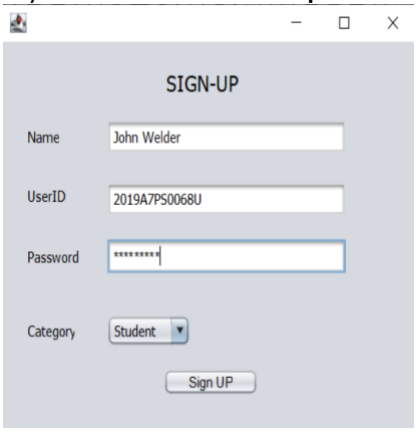
But if they had signed up earlier, they could just enter their details and log in



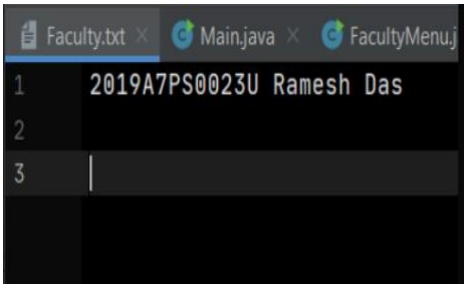
While creating a user account, there are two categories, if the person is **faculty** member then they have to select **faculty option**.



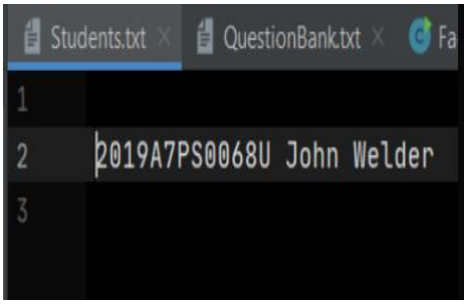
or if the person is **student**, they have to select **student option**



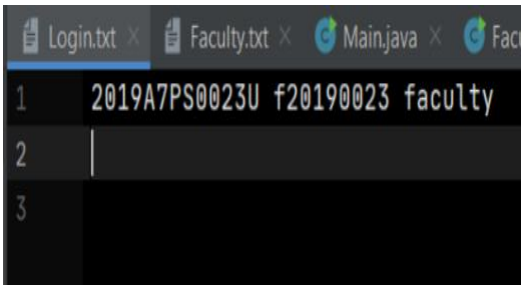
Once the person chooses the option of **faculty**, adds his/her details and hits sign up they name and user will be recorded in **Faculty.txt**



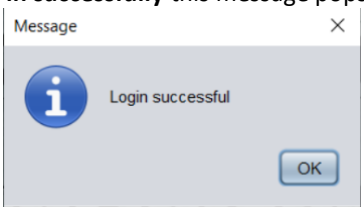
And if they choose the option of **student**, adds his/her details and hits sign up they name and user will be recorded in **Student.txt**



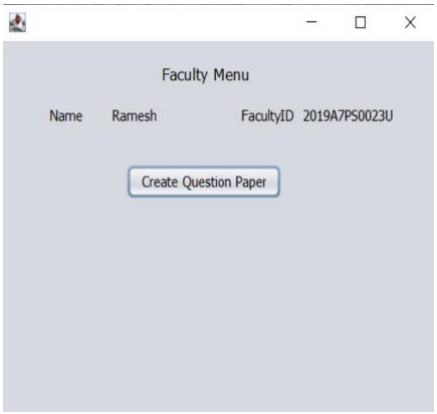
And when the person logs in their details, user id, password and category (whether **student** or **faculty**) gets recorded in **Login.txt**



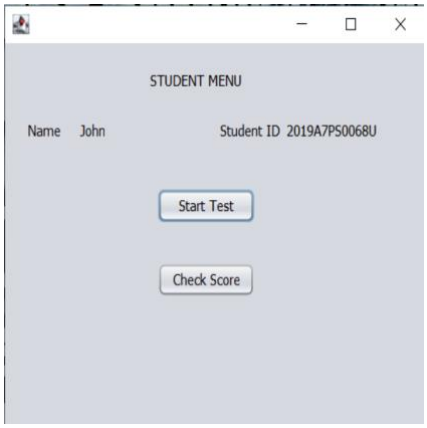
And when the person has **logged in successfully** this message pops up



Depending on the person's **category** whether student or faculty next Jframe pop up shows,
This, if the **faculty** has logged in,



This is shown if a **student** has logged in

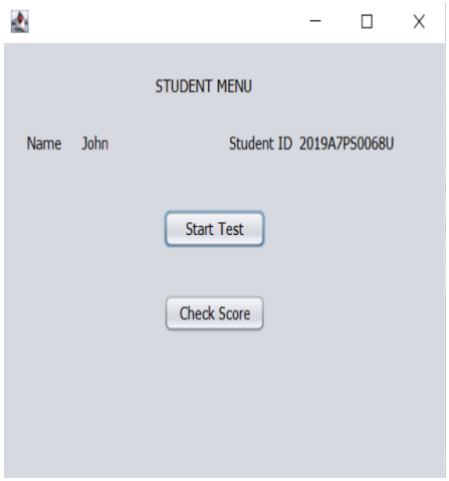


Now when a faculty member has logged in, he/she can create question paper by clicking the option given below.

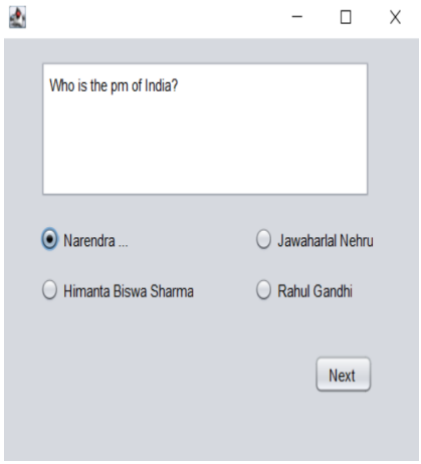
Once they have clicked the control goes to this page, where they can enter the question, enter the **options** and select the **correct option**, if they want to add another question, they can do so by clicking **Enter another Question** option, when they are done with making all questions, they ca click **Done**,

Once they hit done the Question along with all the options and correct options will be saved in **QuestionBank.txt file**

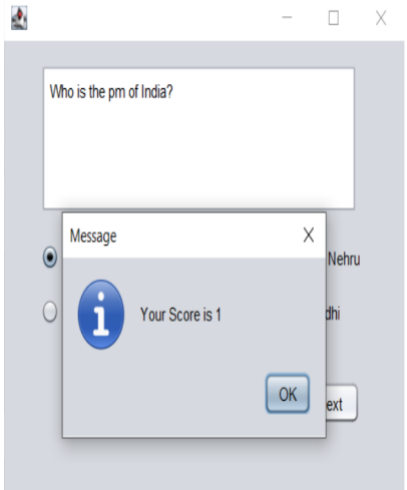
But in case when a **student** logs in they are provided with two options, Start test and check score



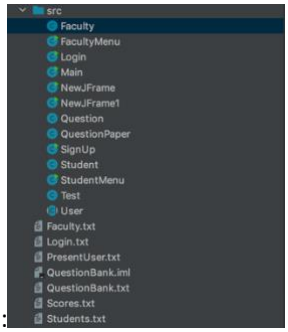
If the **student** selects Start test, they will be directed to this page



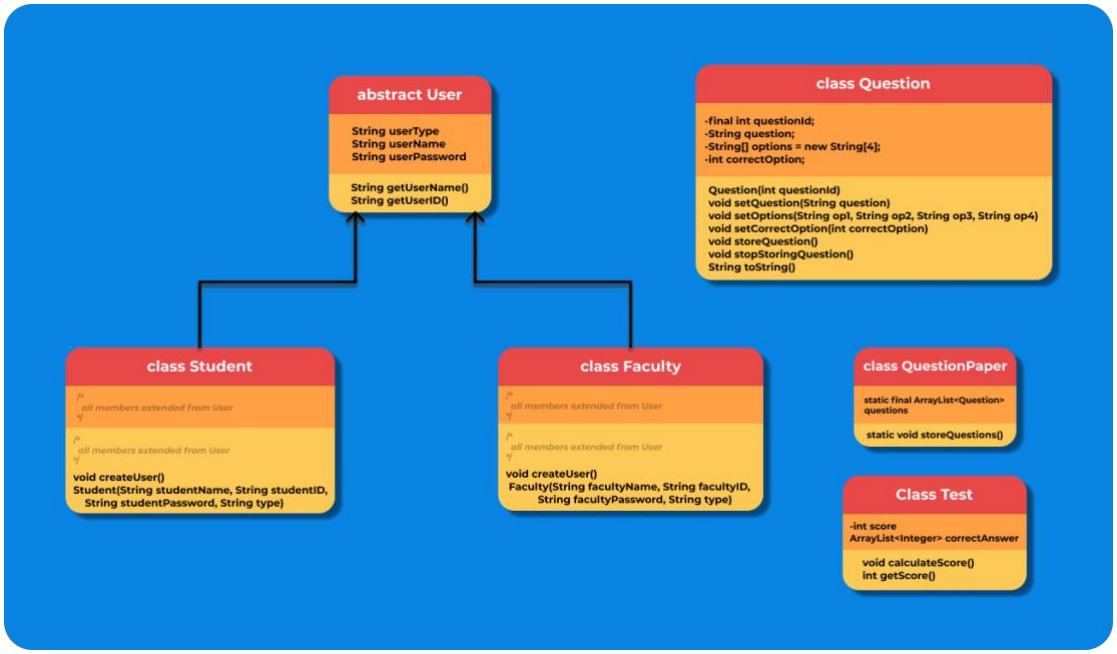
Where they can enter their choice and click **next**, **depending** upon the **number of questions the questionnaire will end and the final score will be displayed**.



The following are the Classes used in the program:



UML:



SOURCE CODE:

Main.java

```
import java.io.IOException;

public class Main {
	public static void main(String[] args) throws IOException {
		//Faculty faculty = new Faculty("Adeeb", "2019A7PS0145U", "f20190145");
		//faculty.createUser();

	}
}
```

Login.java

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */

import javax.swing.*;
import java.io.File;
import java.io.FileNotFoundException;
import java.io.FileWriter;
import java.io.IOException;
import java.util.Scanner;

/**
 * @author User1
 */
public class Login extends javax.swing.JFrame {

    /**
     * Creates new form Login
     */
    public Login() {
        initComponents();
    }

    /**
     * This method is called from within the constructor to initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is always
     * regenerated by the Form Editor.
     */
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jLabel3 = new javax.swing.JLabel();
        jTextField1 = new javax.swing.JTextField();
        jPasswordField1 = new javax.swing.JPasswordField();
        jButton1 = new javax.swing.JButton();
        jButton2 = new javax.swing.JButton();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jLabel1.setFont(new java.awt.Font("Tahoma", 0, 24)); // NOI18N
        jLabel1.setText("          LOGIN");

        jLabel2.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jLabel2.setText("USER ID");
```

```
jLabel3.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
jLabel3.setText("PASSWORD");

jButton1.setText("LOG-IN");
jButton1.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
            try {
                  jButton1ActionPerformed(evt);
            } catch (FileNotFoundException e) {
                  e.printStackTrace();
            } catch (IOException e) {
                  e.printStackTrace();
            }
      }
});

jButton2.setText("SIGN-UP");
jButton2.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
            jButton2ActionPerformed(evt);
      }
});

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(layout.createSequentialGroup()
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(layout.createSequentialGroup()
.addGap(71, 71, 71)
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addComponent(jLabel3)
.addComponent(jLabel2,javax.swing.GroupLayout.PREFERRED_SIZE,53,javax.swing.
 Group.Layout.PREFERRED_SIZE))
.addGap(55, 55, 55)
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
 .addComponent(jPasswordField1, javax.swing.GroupLayout.PREFERRED_SIZE, 123,
 javax.swing.GroupLayout.PREFERRED_SIZE)
.addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED_SIZE, 123,
 javax.swing.GroupLayout.PREFERRED_SIZE)))
.addGroup(layout.createSequentialGroup()
.addGap(110, 110, 110)
.addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 152,
 javax.swing.GroupLayout.PREFERRED_SIZE))
.addGroup(layout.createSequentialGroup()
.addGap(92, 92, 92)
.addComponent(jButton1)
 .addGap(54, 54, 54)
.addComponent(jButton2)))
 .addContainerGap(76, Short.MAX_VALUE))
);
layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
              .addGroup(layout.createSequentialGroup()
              .addGap(28, 28, 28)
              .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 35,
```

```
                javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGap(31, 31, 31)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BA
                SELINE)
                .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 21,
                javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED_SIZE,
                javax.swing.GroupLayout.DEFAULT_SIZE,
                javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(18, 18, 18)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BA
                SELINE)
                .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 23,
                javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(jPasswordField1, javax.swing.GroupLayout.PREFERRED_SIZE,
                javax.swing.GroupLayout.DEFAULT_SIZE,
                javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 64,
                Short.MAX_VALUE)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BA
                SELINE)
                .addComponent(jButton1)
                .addComponent(jButton2))
                .addGap(59, 59, 59))
        );

        pack();
    }// </editor-fold>

    private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) throws IOException {
        File file = new File("Login.txt");
        Scanner scanner = new Scanner(file);
        boolean userFound = false;
        boolean passwordValid = false;
        String userType = null;
        char[] password = jPasswordField1.getPassword();
        String pass = new String(password);
        while (scanner.hasNext()) {
            String s = scanner.nextLine();
            String[] x = s.split(" ");
            if (x[0].equals(jTextField1.getText())) {
                userFound = true;
                if (x[1].equals(pass)) {
                    passwordValid = true;
                    userType = x[2];
                }
                break;
            }
        }

        if (userFound && passwordValid) {
            JOptionPane.showMessageDialog(new JFrame(), "Login successful");
            if (userType.equals("faculty")) {
                this.setVisible(false);
                new FacultyMenu().setVisible(true);

            } else if (userType.equals("student")) {
```

```
                this.setVisible(false);
                new StudentMenu().setVisible(true);
            }
        } else
            JOptionPane.showMessageDialog(new JFrame(), "UserID or Password incorrect");
        scanner.close();
        File file1 = new File("Faculty.txt");
        Scanner scanner1 = new Scanner(file1);
        String userName = null;
        while (scanner1.hasNext()) {
            String s = scanner1.nextLine();
            String[] x = s.split(" ");
            if (x[0].equals(jTextField1.getText())) {
                userName = x[1];
                break;
            }
        }
        File file2 = new File("Students.txt");
        Scanner scanner2 = new Scanner(file2);
        while (scanner2.hasNext()) {
            String s = scanner2.nextLine();
            String[] x = s.split(" ");
            if (x[0].equals(jTextField1.getText())) {
                userName = x[1];
                break;
            }
        }
        FileWriter fileWriter = new FileWriter("PresentUser.txt");
        fileWriter.append(userName).append(" ").append(jTextField1.getText());
        scanner1.close();
        scanner2.close();
        fileWriter.close();
    }

    private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
        new SignUp().setVisible(true);
        this.setVisible(false);
    }

    /**
     * @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.
         * For details see
http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
         */
        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(Login.class.getName()).log(java.util.logging.Level.SEVERE, null,
ex);
            } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(Login.class.getName()).log(java.util.logging.Level.SEVERE, null,
ex);
            } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(Login.class.getName()).log(java.util.logging.Level.SEVERE, null,
ex);
            } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(Login.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 Login().setVisible(true);
                }
            });
        }

        // Variables declaration - do not modify
        private javax.swing.JButton jButton1;
        private javax.swing.JButton jButton2;
        private javax.swing.JLabel jLabel1;
        private javax.swing.JLabel jLabel2;
        private javax.swing.JLabel jLabel3;
        private javax.swing.JPasswordField jPasswordField1;
        private javax.swing.JTextField jTextField1;
        // End of variables declaration
}
```

Faculty.java

```
import java.io.FileWriter;
import java.io.IOException;

public class Faculty extends User {

	Faculty(String facultyName, String facultyID, String facultyPassword, String type) {
		userName = facultyName;
		userPassword = facultyPassword;
		userID = facultyID;
		userType = type;
	}

	void createUser() throws IOException {
		FileWriter facultyFile = new FileWriter("Faculty.txt", true);
		facultyFile.append(userID + " " + userName + "\n");
		FileWriter loginFile = new FileWriter("Login.txt", true);
		loginFile.append(userID + " " + userPassword + " " + userType + "\n");
		facultyFile.close();
		loginFile.close();
	}
}
```

FacultyMenu.java

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */

import java.io.File;
import java.io.FileNotFoundException;
import java.io.IOException;
import java.util.Scanner;

/**
 * @author User1
 */
public class FacultyMenu extends javax.swing.JFrame {

    /**
     * Creates new form FacultyMenu
     */
    public FacultyMenu() throws FileNotFoundException {
        initComponents();
        File file = new File("PresentUser.txt");
        Scanner scanner = new Scanner(file);
        String s = scanner.nextLine();
        scanner.close();
        String[] x = s.split(" ");
        jLabel5.setText(x[0]);
        jLabel6.setText(x[1]);

    }

    /**
     * This method is called from within the constructor to
     * initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is
     * always regenerated by the Form Editor.
     */
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jLabel3 = new javax.swing.JLabel();
        jLabel4 = new javax.swing.JLabel();
        jLabel5 = new javax.swing.JLabel();
        jLabel6 = new javax.swing.JLabel();
        jButton1 = new javax.swing.JButton();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jLabel1.setFont(new java.awt.Font("Tahoma", 0, 14)); // NOI18N
        jLabel1.setText("Faculty Menu");

        jLabel2.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jLabel2.setText("Name");

        jLabel3.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jLabel3.setText("FacultyID");

        jLabel4.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N

        jLabel5.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jLabel5.setText("jLabel5");
```

```
        jLabel6.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jLabel6.setText("jLabel6");

        jButton1.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jButton1.setText("Create Question Paper");
        jButton1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                try {
                    jButton1ActionPerformed(evt);
                } catch (IOException e) {
                    e.printStackTrace();
                }
            }
        });

        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(46, 46, 46)
                   .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 47,
                   javax.swing.GroupLayout.PREFERRED_SIZE)
                   .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                   .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                   .addComponent(jLabel4, javax.swing.GroupLayout.PREFERRED_SIZE, 57,
                   javax.swing.GroupLayout.PREFERRED_SIZE)
                   .addComponent(jLabel5, javax.swing.GroupLayout.PREFERRED_SIZE, 72,
                   javax.swing.GroupLayout.PREFERRED_SIZE))
                  .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 50,
                  Short.MAX_VALUE)
                   .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 53,
                  javax.swing.GroupLayout.PREFERRED_SIZE)
                  .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                  .addComponent(jLabel6, javax.swing.GroupLayout.PREFERRED_SIZE, 94,
                  javax.swing.GroupLayout.PREFERRED_SIZE)
                  .addGap(32, 32, 32))
                   .addGroup(layout.createSequentialGroup()
                   .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                   .addGroup(layout.createSequentialGroup()
                   .addGap(152, 152, 152)
                   .addComponent(jLabel1))
                   .addGroup(layout.createSequentialGroup()
                   .addGap(119, 119, 119)
                   .addComponent(jButton1)))
                   .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup()
                    .addGap(18, 18, 18)
                    .addComponent(jLabel1)
                    .addGap(18, 18, 18)
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE
)
                        .addComponent(jLabel3)
                        .addComponent(jLabel4)
                        .addComponent(jLabel2)
                        .addComponent(jLabel5)
                        .addComponent(jLabel6))
                    .addGap(33, 33, 33)
                    .addComponent(jButton1)
                    .addContainerGap(176, Short.MAX_VALUE))
        );

        pack();
    }// </editor-fold>

    private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) throws IOException {
        new NewJFrame1().setVisible(true);
```

```
        this.setVisible(false);
    }

    /**
     * @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.
         * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
         */
        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(FacultyMenu.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (InstantiationException ex) {
            java.util.logging.Logger.getLogger(FacultyMenu.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (IllegalAccessException ex) {
            java.util.logging.Logger.getLogger(FacultyMenu.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {
            java.util.logging.Logger.getLogger(FacultyMenu.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() {
                try {
                    new FacultyMenu().setVisible(true);
                } catch (FileNotFoundException e) {
                    e.printStackTrace();
                }
            }
        });
    }

    // Variables declaration - do not modify
    private javax.swing.JButton jButton1;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JLabel jLabel5;
    private javax.swing.JLabel jLabel6;
    // End of variables declaration
```

NewJFrame.java

```
import javax.swing.*;
import java.awt.event.WindowEvent;
import java.io.File;
import java.io.FileNotFoundException;
import java.io.IOException;
import java.util.NoSuchElementException;
import java.util.Scanner;

public class NewJFrame extends javax.swing.JFrame {
    int correctOption;
    int numberOfQuestions;
    File file = new File("QuestionBank.txt");
    Scanner sc = new Scanner(file);
    Test test = new Test();

    /**
     * Creates new form NewJFrame
     */

    public NewJFrame() throws IOException {
        initComponents();
        setQuestion();

    }

    /**
     * This method is called from within the constructor to initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is always
     * regenerated by the Form Editor.
     */
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        buttonGroup1 = new javax.swing.ButtonGroup();
        jRadioButton1 = new javax.swing.JRadioButton();
        jRadioButton2 = new javax.swing.JRadioButton();
        jRadioButton3 = new javax.swing.JRadioButton();
        jRadioButton4 = new javax.swing.JRadioButton();
        jScrollPane1 = new javax.swing.JScrollPane();
        jTextArea1 = new javax.swing.JTextArea();
        jButton2 = new javax.swing.JButton();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        buttonGroup1.add(jRadioButton1);
        jRadioButton1.setText("jRadioButton1");

        buttonGroup1.add(jRadioButton2);
        jRadioButton2.setText("jRadioButton2");
        jRadioButton2.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jRadioButton2ActionPerformed(evt);
            }
        });

        buttonGroup1.add(jRadioButton3);
        jRadioButton3.setText("jRadioButton3");

        buttonGroup1.add(jRadioButton4);
        jRadioButton4.setText("jRadioButton4");

        jTextArea1.setEditable(false);
        jTextArea1.setColumns(20);
```

```
        jTextArea1.setRows(5);
        jScrollPane1.setViewportView(jTextArea1);

        jButton2.setText("Next ");
        jButton2.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                try {
                    jButton2ActionPerformed(evt);
                } catch (IOException e) {
                    e.printStackTrace();
                }
            }
        });

        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(37, 37, 37)
                                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                                        .addComponent(jRadioButton1, javax.swing.GroupLayout.PREFERRED_SIZE,
89, javax.swing.GroupLayout.PREFERRED_SIZE)
                                        .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE,
314, javax.swing.GroupLayout.PREFERRED_SIZE)
                                        .addGroup(layout.createSequentialGroup()
                                                .addComponent(jRadioButton3)
                                                .addGap(58, 58, 58)
                                                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.A
lignment.LEADING)
                                                        .addComponent(jRadioButton4)
                                                        .addComponent(jRadioButton2)))
                                        .addComponent(jButton2, javax.swing.GroupLayout.Alignment.TRAILING))
                                .addContainerGap(49, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
                layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                        .addGroup(layout.createSequentialGroup()
                                .addGap(16, 16, 16)
                                .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                                .addGap(20, 20, 20)
                                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE
)
                                        .addComponent(jRadioButton1)
                                        .addComponent(jRadioButton2))
                                .addGap(18, 18, 18)
                                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                                        .addComponent(jRadioButton4)
                                        .addComponent(jRadioButton3))
                                .addGap(37, 37, 37)
                                .addComponent(jButton2)
                                .addContainerGap(50, Short.MAX_VALUE))
        );

        pack();
    }// </editor-fold>


    private void jRadioButton2ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
    }

    private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) throws FileNotFoundException {

    }

    private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) throws IOException {

        if (jRadioButton1.isSelected()) {
            if (correctOption == 1) {
```

```
                //JOptionPane.showMessageDialog(new JFrame(), "Correct Answer");
                test.correctAnswers.add(1);
            } else {
                //JOptionPane.showMessageDialog(new JFrame(), "Wrong Answer");
                test.correctAnswers.add(0);
            }

        } else if (jRadioButton2.isSelected()) {
            if (correctOption == 2) {
                //JOptionPane.showMessageDialog(new JFrame(), "Correct Answer");
                test.correctAnswers.add(1);
            } else {
                //JOptionPane.showMessageDialog(new JFrame(), "Wrong Answer");
                test.correctAnswers.add(0);
            }
        } else if (jRadioButton3.isSelected()) {
            if (correctOption == 3) {
                //JOptionPane.showMessageDialog(new JFrame(), "Correct Answer");
                test.correctAnswers.add(1);
            } else {
                //JOptionPane.showMessageDialog(new JFrame(), "Wrong Answer");
                test.correctAnswers.add(0);
            }
        } else if (jRadioButton4.isSelected()) {
            if (correctOption == 4) {
                //JOptionPane.showMessageDialog(new JFrame(), "Correct Answer");
                test.correctAnswers.add(1);
            } else {
                //JOptionPane.showMessageDialog(new JFrame(), "Wrong Answer");
                test.correctAnswers.add(0);
            }
        }
        setQuestion();
        buttonGroup1.clearSelection();
    }


    /**
     * @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.
         * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
         */
        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(NewJFrame.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (InstantiationException ex) {
            java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (IllegalAccessException ex) {
            java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {
            java.util.logging.Logger.getLogger(NewJFrame.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() {
                try {
                    new NewJFrame().setVisible(true);
                } catch (IOException e) {
                    e.printStackTrace();
```

```
                }
            }
        });
    }

    private void setQuestion() throws IOException {
        try {
            String s = sc.nextLine();
            String[] x = s.split("/");
            jTextArea1.setText(x[1]);
            jRadioButton1.setText(x[2]);
            jRadioButton2.setText(x[3]);
            jRadioButton3.setText(x[4]);
            jRadioButton4.setText(x[5]);
            correctOption = Integer.parseInt(x[6]);
        } catch (NoSuchElementException e) {
            test.calculateScore();
            JOptionPane.showMessageDialog(new JFrame(), "Your Score is " + test.getScore());
            this.dispatchEvent(new WindowEvent(this, WindowEvent.WINDOW_CLOSING));
        }


    }

    private javax.swing.ButtonGroup buttonGroup1;
    private javax.swing.JButton jButton2;
    private javax.swing.JRadioButton jRadioButton1;
    private javax.swing.JRadioButton jRadioButton2;
    private javax.swing.JRadioButton jRadioButton3;
    private javax.swing.JRadioButton jRadioButton4;
    private javax.swing.JScrollPane jScrollPane1;
    private javax.swing.JTextArea jTextArea1;
    // End of variables declaration
}
```

NewJFrame1.java

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */

import java.awt.event.ActionEvent;
import java.awt.event.WindowEvent;
import java.io.IOException;

/**
 * @author User1
 */
public class NewJFrame1 extends javax.swing.JFrame {
    int count = 1;


    /**
     * Creates new form NewJFrame1
     */
    public NewJFrame1() throws IOException {
        initComponents();
    }

    /**
     * This method is called from within the constructor to initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is always
     * regenerated by the Form Editor.
     */
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jLabel5 = new javax.swing.JLabel();
        jTextField3 = new javax.swing.JTextField();
        jLabel7 = new javax.swing.JLabel();
        jTextField5 = new javax.swing.JTextField();
        jScrollPane2 = new javax.swing.JScrollPane();
        jEditorPane1 = new javax.swing.JEditorPane();
        jLabel1 = new javax.swing.JLabel();
        jScrollPane1 = new javax.swing.JScrollPane();
        jTextArea1 = new javax.swing.JTextArea();
        jLabel2 = new javax.swing.JLabel();
        jLabel3 = new javax.swing.JLabel();
        jTextField1 = new javax.swing.JTextField();
        jLabel4 = new javax.swing.JLabel();
        jTextField2 = new javax.swing.JTextField();
        jLabel6 = new javax.swing.JLabel();
        jTextField4 = new javax.swing.JTextField();
        jLabel8 = new javax.swing.JLabel();
        jTextField6 = new javax.swing.JTextField();
        jLabel9 = new javax.swing.JLabel();
        jComboBox1 = new javax.swing.JComboBox<>();
        jButton1 = new javax.swing.JButton();
        jButton2 = new javax.swing.JButton();

        jLabel5.setText("Option 2");

        jLabel7.setText("Option 3");

        jScrollPane2.setViewportView(jEditorPane1);

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jLabel1.setText("Enter Question");
```

```
        jScrollPane1.setHorizontalScrollBarPolicy(javax.swing.ScrollPaneConstants.HORIZONTAL_SCROLLBAR_NEVER);
        jScrollPane1.setVerticalScrollBarPolicy(javax.swing.ScrollPaneConstants.VERTICAL_SCROLLBAR_NEVER);
        jScrollPane1.setCursor(new java.awt.Cursor(java.awt.Cursor.DEFAULT_CURSOR));

        jTextArea1.setColumns(20);
        jTextArea1.setRows(5);
        jScrollPane1.setViewportView(jTextArea1);

        jLabel2.setText("Enter Options");

        jLabel3.setText("Option 1");

        jLabel4.setText("Option 2");


        jLabel6.setText("Option 3");


        jLabel8.setText("Option 4");


        jLabel9.setText("Select correct option number");

        jComboBox1.setModel(new javax.swing.DefaultComboBoxModel<>(new String[]{"1", "2", "3", "4"}));

        jButton1.setText("Done");
        jButton1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                try {
                    jButton1ActionPerformed(evt);
                } catch (IOException e) {
                    e.printStackTrace();
                }
            }
        });
        jButton2.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                try {
                    jButton2ActionPerformed(evt);
                } catch (IOException e) {
                    e.printStackTrace();
                }
            }
        });

        jButton2.setText("Enter another Question");
        jButton2.setAlignmentY(0.0F);

        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(20, 20, 20)
                                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
LEADING, false)
                                                .addComponent(jLabel1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                                                .addComponent(jLabel3,
javax.swing.GroupLayout.PREFERRED_SIZE, 47, javax.swing.GroupLayout.PREFERRED_SIZE)
                                                .addComponent(jLabel4,
javax.swing.GroupLayout.PREFERRED_SIZE, 47, javax.swing.GroupLayout.PREFERRED_SIZE)
                                                .addComponent(jLabel6,
javax.swing.GroupLayout.PREFERRED_SIZE, 47, javax.swing.GroupLayout.PREFERRED_SIZE)
                                                .addComponent(jLabel8,
javax.swing.GroupLayout.PREFERRED_SIZE, 47, javax.swing.GroupLayout.PREFERRED_SIZE)
                                                .addComponent(jLabel9, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
```

```
                                                .addComponent(jLabel2,
javax.swing.GroupLayout.PREFERRED_SIZE, 103, javax.swing.GroupLayout.PREFERRED_SIZE))
                                            .addComponent(jButton2))
                                        .addGap(46, 46, 46)
                                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                                            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
TRAILING, false)
                                                .addComponent(jTextField4,
javax.swing.GroupLayout.Alignment.LEADING)
                                                .addComponent(jTextField1,
javax.swing.GroupLayout.Alignment.LEADING)
                                                .addComponent(jScrollPane1,
javax.swing.GroupLayout.Alignment.LEADING, javax.swing.GroupLayout.DEFAULT_SIZE, 178, Short.MAX_VALUE)
                                                .addGroup(javax.swing.GroupLayout.Alignment.LEADING,
layout.createSequentialGroup()
                                                    .addComponent(jComboBox1,
javax.swing.GroupLayout.PREFERRED_SIZE, 70, javax.swing.GroupLayout.PREFERRED_SIZE)
                                                    .addPreferredGap(javax.swing.LayoutStyle.ComponentPl
acement.RELATED, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                                                    .addComponent(jButton1))
                                                .addComponent(jTextField6))
                                            .addComponent(jTextField2, javax.swing.GroupLayout.PREFERRED_SIZE,
178, javax.swing.GroupLayout.PREFERRED_SIZE))
                                        .addContainerGap(17, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
                layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(layout.createSequentialGroup()
                        .addGap(28, 28, 28)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel1)
                            .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE,
56, javax.swing.GroupLayout.PREFERRED_SIZE))
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jLabel2)
                        .addGap(12, 12, 12)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE
)
                            .addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(jLabel3))
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addGroup(layout.createSequentialGroup()
                                .addComponent(jLabel4)
                                .addGap(18, 18, 18)
                                .addComponent(jLabel6))
                            .addGroup(layout.createSequentialGroup()
                                .addComponent(jTextField2,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
                                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.
UNRELATED)
                                .addComponent(jTextField4,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
                                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.
UNRELATED)
                                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.A
lignment.BASELINE)
                                    .addComponent(jTextField6,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
                                    .addComponent(jLabel8,
javax.swing.GroupLayout.PREFERRED_SIZE, 18, javax.swing.GroupLayout.PREFERRED_SIZE))))
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel9)
                            .addComponent(jComboBox1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
```

```
                                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                                                .addComponent(jButton1)
                                                .addComponent(jButton2))
                                        .addContainerGap(18, Short.MAX_VALUE))
        );

        pack();
    }// </editor-fold>

    private void jButton2ActionPerformed(ActionEvent evt) throws IOException {
        addQuestion();
        clearAll();
    }


    private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) throws IOException {
        addQuestion();
        QuestionPaper.storeQuestions();
        this.dispatchEvent(new WindowEvent(this, WindowEvent.WINDOW_CLOSING));
    }

    private void addQuestion() throws IOException {
        Question question = new Question(count);
        question.setQuestion(jTextArea1.getText());
        question.setOptions(jTextField1.getText(), jTextField2.getText(), jTextField4.getText(), jTextField6.getText());
        question.setCorrectOption(jComboBox1.getSelectedIndex() + 1);
        QuestionPaper.questions.add(question);
        count++;
    }

    private void clearAll() {
        jTextArea1.setText("");
        jTextField1.setText("");
        jTextField2.setText("");
        jTextField4.setText("");
        jTextField6.setText("");
        jComboBox1.setSelectedIndex(0);
    }

    /**
     * @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.
         * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
         */
        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(NewJFrame1.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (InstantiationException ex) {
            java.util.logging.Logger.getLogger(NewJFrame1.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (IllegalAccessException ex) {
            java.util.logging.Logger.getLogger(NewJFrame1.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {
            java.util.logging.Logger.getLogger(NewJFrame1.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() {
                try {
                    new NewJFrame1().setVisible(true);
```

```
                    } catch (IOException e) {
                        e.printStackTrace();
                    }
                }
            });
    }

    // Variables declaration - do not modify
    private javax.swing.JButton jButton1;
    private javax.swing.JButton jButton2;
    private javax.swing.JComboBox<String> jComboBox1;
    private javax.swing.JEditorPane jEditorPane1;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JLabel jLabel5;
    private javax.swing.JLabel jLabel6;
    private javax.swing.JLabel jLabel7;
    private javax.swing.JLabel jLabel8;
    private javax.swing.JLabel jLabel9;
    private javax.swing.JScrollPane jScrollPane1;
    private javax.swing.JScrollPane jScrollPane2;
    private javax.swing.JTextArea jTextArea1;
    private javax.swing.JTextField jTextField1;
    private javax.swing.JTextField jTextField2;
    private javax.swing.JTextField jTextField3;
    private javax.swing.JTextField jTextField4;
    private javax.swing.JTextField jTextField5;
    private javax.swing.JTextField jTextField6;
    // End of variables declaration
}
```

Question.java

```
import java.io.IOException;

public class Question {
	private final int questionId;
	private String question;
	private String[] options = new String[4];
	private int correctOption;


	Question(int questionId) throws IOException {
		this.questionId = questionId;
	}

	public void setQuestion(String question) {
		this.question = question;
	}

	public void setOptions(String options1, String options2, String options3, String options4) {
		options[0] = options1;
		options[1] = options2;
		options[2] = options3;
		options[3] = options4;
	}

	public void setCorrectOption(int correctOption) {
		this.correctOption = correctOption;
	}

	public void storeQuestion() throws IOException {
		if (!question.equals("")) {
			QuestionPaper.questions.add(this);
		}

	}

	public void stopStoringQuestion() throws IOException {
		//fileWriter.close();
	}

	public String toString() {
		return questionId + "/" + question + "/" + options[0]
				+ "/" + options[1] + "/" + options[2] + "/" + options[3] + "/" + correctOption + "\n";
	}
}
```

QuestionPaper.java

```
import java.io.FileWriter;
import java.io.IOException;
import java.util.ArrayList;

public class QuestionPaper {

	public static final ArrayList<Question> questions = new ArrayList<>();


	public static void storeQuestions() throws IOException {
		FileWriter fileWriter = new FileWriter("QuestionBank.txt", true);
		for (Question question : questions) {
			fileWriter.append(question.toString());
		}
		fileWriter.close();
	}
}
```

SignUp.java

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */


import javax.swing.*;
import java.io.IOException;

/**
 * @author User1
 */
public class SignUp extends javax.swing.JFrame {

    /**
     * Creates new form SignUp
     */
    public SignUp() {
        initComponents();
    }

    /**
     * This method is called from within the constructor to
     * initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is
     * always regenerated by the Form Editor.
     */
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jTextField1 = new javax.swing.JTextField();
        jLabel3 = new javax.swing.JLabel();
        jPasswordField1 = new javax.swing.JPasswordField();
        jLabel4 = new javax.swing.JLabel();
        jTextField2 = new javax.swing.JTextField();
        jComboBox1 = new javax.swing.JComboBox<>();
        jLabel5 = new javax.swing.JLabel();
        jButton1 = new javax.swing.JButton();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jLabel1.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
        jLabel1.setText("          SIGN-UP");

        jLabel2.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jLabel2.setText("Name");

        jTextField1.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N

        jLabel3.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jLabel3.setText("Password");

        jLabel4.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jLabel4.setText("UserID");

        jTextField2.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N

        jComboBox1.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jComboBox1.setModel(new javax.swing.DefaultComboBoxModel<>(new String[]{"Student", "Faculty"}));

        jLabel5.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
```

```
        jLabel5.setText("Category");

        jButton1.setText("Sign UP");
        jButton1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                try {
                    jButton1ActionPerformed(evt);
                } catch (IOException e) {
                    e.printStackTrace();
                }
            }
        });

        javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
        getContentPane().setLayout(layout);
        layout.setHorizontalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup()
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                        .addGroup(layout.createSequentialGroup()
                            .addGap(125, 125, 125)
                            .addComponent(jLabel1,
javax.swing.GroupLayout.PREFERRED_SIZE, 129, javax.swing.GroupLayout.PREFERRED_SIZE))
                        .addGroup(layout.createSequentialGroup()
                            .addGap(24, 24, 24)
                            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.A
lignment.LEADING, false)
                                .addGroup(layout.createSequentialGroup()
                                    .addGroup(layout.createParallelGroup(javax.s
wing.GroupLayout.Alignment.LEADING)
                                        .addComponent(jLabel2,
javax.swing.GroupLayout.PREFERRED_SIZE, 65, javax.swing.GroupLayout.PREFERRED_SIZE)
                                        .addComponent(jLabel4,
javax.swing.GroupLayout.PREFERRED_SIZE, 49, javax.swing.GroupLayout.PREFERRED_SIZE))
                                    .addPreferredGap(javax.swing.LayoutStyle.Co
mponentPlacement.UNRELATED)
                                    .addGroup(layout.createParallelGroup(javax.s
wing.GroupLayout.Alignment.LEADING, false)
                                        .addComponent(jTextField1)
                                        .addComponent(jTextField2,
javax.swing.GroupLayout.DEFAULT_SIZE, 231, Short.MAX_VALUE)))
                                .addGroup(javax.swing.GroupLayout.Alignment.TRAILIN
G, layout.createSequentialGroup()
                                    .addGroup(layout.createParallelGroup(javax.s
wing.GroupLayout.Alignment.LEADING, false)
                                        .addComponent(jLabel3,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                                        .addComponent(jLabel5,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                                    .addPreferredGap(javax.swing.LayoutStyle.Co
mponentPlacement.RELATED, 26, Short.MAX_VALUE)
                                    .addGroup(layout.createParallelGroup(javax.s
wing.GroupLayout.Alignment.LEADING)
                                        .addComponent(jPasswordField1,
javax.swing.GroupLayout.PREFERRED_SIZE, 231, javax.swing.GroupLayout.PREFERRED_SIZE)
                                        .addComponent(jComboBox1,
javax.swing.GroupLayout.PREFERRED_SIZE, 81, javax.swing.GroupLayout.PREFERRED_SIZE)))))
                        .addGroup(layout.createSequentialGroup()
                            .addGap(156, 156, 156)
                            .addComponent(jButton1,
javax.swing.GroupLayout.PREFERRED_SIZE, 91, javax.swing.GroupLayout.PREFERRED_SIZE)))
                    .addContainerGap(70, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup()
                    .addGap(22, 22, 22)
                    .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 23,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addGap(18, 18, 18)
```

```
                                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE
)
                                                .addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                                                .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 24,
javax.swing.GroupLayout.PREFERRED_SIZE))
                                        .addGap(18, 18, 18)
                                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                                                .addComponent(jLabel4, javax.swing.GroupLayout.PREFERRED_SIZE, 31,
javax.swing.GroupLayout.PREFERRED_SIZE)
                                                .addGroup(layout.createSequentialGroup()
                                                        .addGap(5, 5, 5)
                                                        .addComponent(jTextField2,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)))
                                        .addGap(18, 18, 18)
                                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE
)
                                                .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 24,
javax.swing.GroupLayout.PREFERRED_SIZE)
                                                .addComponent(jPasswordField1,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
                                        .addGap(33, 33, 33)
                                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE
)
                                                .addComponent(jComboBox1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                                                .addComponent(jLabel5, javax.swing.GroupLayout.PREFERRED_SIZE, 19,
javax.swing.GroupLayout.PREFERRED_SIZE))
                                        .addGap(18, 18, 18)
                                        .addComponent(jButton1, javax.swing.GroupLayout.PREFERRED_SIZE, 21,
javax.swing.GroupLayout.PREFERRED_SIZE)
                                        .addContainerGap(29, Short.MAX_VALUE))
                );

                pack();
        }// </editor-fold>

        private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) throws IOException {
                String password = new String(jPasswordField1.getPassword());
                if (jComboBox1.getSelectedIndex() == 0) {
                        Student student = new Student(jTextField1.getText(), jTextField2.getText(), password, "student");
                        student.createUser();
                } else {
                        Faculty faculty = new Faculty(jTextField1.getText(), jTextField2.getText(), password, "faculty");
                        faculty.createUser();
                }
                JOptionPane.showMessageDialog(new JFrame(), "Sign-Up Successful");
                this.setVisible(false);
                new Login().setVisible(true);
        }

        /**
          * @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.
                  * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
                  */
                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(SignUp.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
```

```
        } catch (InstantiationException ex) {
            java.util.logging.Logger.getLogger(SignUp.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (IllegalAccessException ex) {
            java.util.logging.Logger.getLogger(SignUp.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {
            java.util.logging.Logger.getLogger(SignUp.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 SignUp().setVisible(true);
            }
        });
    }

    // Variables declaration - do not modify
    private javax.swing.JButton jButton1;
    private javax.swing.JComboBox<String> jComboBox1;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JLabel jLabel5;
    private javax.swing.JPasswordField jPasswordField1;
    private javax.swing.JTextField jTextField1;
    private javax.swing.JTextField jTextField2;
    // End of variables declaration

}
```

Student.java

```
import java.io.FileWriter;
import java.io.IOException;

public class Student extends User {

	Student(String studentName, String studentID, String studentPassword, String type) {
		userName = studentName;
		userPassword = studentPassword;
		userID = studentID;
		userType = type;
	}

	void createUser() throws IOException {
		FileWriter studentsFile = new FileWriter("Students.txt", true);
		studentsFile.append(userID + " " + userName + "\n");
		FileWriter loginFile = new FileWriter("Login.txt", true);
		loginFile.append(userID + " " + userPassword + " " + userType + "\n");
		studentsFile.close();
		loginFile.close();
	}
}
```

StudentMenu.java

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */


import javax.swing.*;
import java.awt.event.ActionEvent;
import java.io.File;
import java.io.FileNotFoundException;
import java.io.IOException;
import java.util.Scanner;

/**
 * @author User1
 */
public class StudentMenu extends javax.swing.JFrame {

    /**
     * Creates new form StudentMenu
     */
    public StudentMenu() throws FileNotFoundException {
        initComponents();
        File file = new File("PresentUser.txt");
        Scanner scanner = new Scanner(file);
        String s = scanner.nextLine();
        scanner.close();
        String[] x = s.split(" ");
        jLabel4.setText(x[0]);
        jLabel5.setText(x[1]);

    }

    /**
     * This method is called from within the constructor to initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is always
     * regenerated by the Form Editor.
     */
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jLabel3 = new javax.swing.JLabel();
        jLabel4 = new javax.swing.JLabel();
        jLabel5 = new javax.swing.JLabel();
        jButton1 = new javax.swing.JButton();
        jButton2 = new javax.swing.JButton();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jLabel1.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jLabel1.setText("STUDENT MENU");

        jLabel2.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jLabel2.setText("Name");

        jLabel3.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jLabel3.setText("Student ID");

        jLabel4.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jLabel4.setText("jLabel4");

        jLabel5.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
```

```
        jLabel5.setText("jLabel5");

        jButton1.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jButton1.setText("Start Test");

        jButton2.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
        jButton2.setText("Check Score");
        jButton1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(ActionEvent e) {
                try {
                    jButton1ActionPerformed(e);
                } catch (IOException fileNotFoundException) {
                    fileNotFoundException.printStackTrace();
                }
            }
        });
        jButton2.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(ActionEvent e) {
                try {
                    jButton2ActionPerformed(e);
                } catch (FileNotFoundException fileNotFoundException) {
                    fileNotFoundException.printStackTrace();
                }
            }
        });


        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(22, 22, 22)
                    .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 43,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                    .addComponent(jLabel4, javax.swing.GroupLayout.PREFERRED_SIZE, 78,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 55,
Short.MAX_VALUE)
                    .addComponent(jLabel3)
                    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                    .addComponent(jLabel5, javax.swing.GroupLayout.PREFERRED_SIZE, 91,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addGap(42, 42, 42))
                .addGroup(layout.createSequentialGroup()
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                        .addGroup(layout.createSequentialGroup()
                            .addGap(138, 138, 138)
                            .addComponent(jLabel1))
                        .addGroup(layout.createSequentialGroup()
                            .addGap(145, 145, 145)
                            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.A
lignment.LEADING, false)
                                .addComponent(jButton2,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                                .addComponent(jButton1,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))))
                    .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup()
                    .addGap(16, 16, 16)
                    .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 29,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addGap(18, 18, 18)
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE
)
                        .addComponent(jLabel2)
                        .addComponent(jLabel3)
```

```
                                        .addComponent(jLabel4)
                                        .addComponent(jLabel5))
                                .addGap(39, 39, 39)
                                .addComponent(jButton1)
                                .addGap(32, 32, 32)
                                .addComponent(jButton2)
                                .addContainerGap(105, Short.MAX_VALUE))
        );

        pack();
    }// </editor-fold>

    private void jButton2ActionPerformed(ActionEvent e) throws FileNotFoundException {
        File file = new File("PresentUser.txt");
        Scanner sc = new Scanner(file);
        String x = sc.nextLine();
        String[] y = x.split(" ");
        String id = y[1];
        File file1 = new File("Scores.txt");
        Scanner scanner = new Scanner(file1);
        boolean found = false;
        String score = null;
        while (scanner.hasNext()) {

            String a = scanner.nextLine();
            String[] b = a.split(" ");
            if (b[0].equals(id)) {
                found = true;
                score = b[1];
            }
        }
        if (found) {
            JOptionPane.showMessageDialog(new JFrame(), "You Scored " + score);
        } else
            JOptionPane.showMessageDialog(new JFrame(), "Score not found");
    }

    private void jButton1ActionPerformed(ActionEvent e) throws IOException {
        this.setVisible(false);
        new NewJFrame().setVisible(true);
    }

    /**
     * @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.
         * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
         */
        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(StudentMenu.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (InstantiationException ex) {
            java.util.logging.Logger.getLogger(StudentMenu.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (IllegalAccessException ex) {
            java.util.logging.Logger.getLogger(StudentMenu.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {
            java.util.logging.Logger.getLogger(StudentMenu.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() {
                    try {
                        new StudentMenu().setVisible(true);
                    } catch (FileNotFoundException e) {
                        e.printStackTrace();
                    }
                }
            });
    }

    // Variables declaration - do not modify
    private javax.swing.JButton jButton1;
    private javax.swing.JButton jButton2;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JLabel jLabel5;
    // End of variables declaration
}
```

Test.java

```
import java.io.File;
import java.io.FileWriter;
import java.io.IOException;
import java.util.ArrayList;
import java.util.Scanner;

public class Test {
	private int score;
	public ArrayList<Integer> correctAnswers = new ArrayList<>();

	public void calculateScore() throws IOException {
		score = 0;
		for (Integer integer : correctAnswers) {
			score = score + integer;
		}
		FileWriter fileWriter = new FileWriter("Scores.txt", true);
		File file = new File("PresentUser.txt");
		Scanner sc = new Scanner(file);
		String x = sc.nextLine();
		String[] y = x.split(" ");
		String id = y[1];
		fileWriter.append(id).append(" ").append(String.valueOf(score)).append("\n");
		fileWriter.close();
	}

	public int getScore() {
		return score;
	}
}
```

User.java

```
import java.io.File;
import java.io.FileWriter;
import java.io.IOException;
import java.util.ArrayList;
import java.util.Scanner;

public class Test {
	private int score;
	public ArrayList<Integer> correctAnswers = new ArrayList<>();

	public void calculateScore() throws IOException {
		score = 0;
		for (Integer integer : correctAnswers) {
			score = score + integer;
		}
		FileWriter fileWriter = new FileWriter("Scores.txt", true);
		File file = new File("PresentUser.txt");
		Scanner sc = new Scanner(file);
		String x = sc.nextLine();
		String[] y = x.split(" ");
		String id = y[1];
		fileWriter.append(id).append(" ").append(String.valueOf(score)).append("\n");
		fileWriter.close();
	}

	public int getScore() {
		return score;
	}
}
```