**Lab 13**

**Roll num: 21SW105**

01. Write a JDBC application with the previous GUI by adding another button named database. The Fields of GUI application includes.

1. Reg. No. 2. Name 3. Batch 4. Section

5. Gender (must be a choice object) eg Radio Button

6. Qualification (must be a choice object) eg Check Box

7. Address (must have multiple lines) eg TextArea

8. Country (must be list item) eg ComboBox

This application must have 4 buttons on the screen 1st one is for Save the record to JSON file and 2nd for Display, and 3rd one for inserting the record into database. And fourth to fetch from database and display.

Create a colorful GUI by adding background color or image to buttons and frame.

This task contain 4 Marks. Two to complete task with JSON file and colorfull GUI and 1 to upload it on github. And 1 for database implementation.

The GUI must look like following screenshot.

import org.json.simple.JSONObject;

import org.json.simple.parser.JSONParser;

import javax.swing.\*;

import java.awt.\*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import java.io.FileReader;

import java.io.FileWriter;

import java.sql.\*;

public class Lab\_13\_Task {

static Connection connection=null;

JFrame frame;

JPanel panel;

JLabel name,roll,batch,section,gender,qualification,address,country;

JTextField t1,t2,t3,t4;

JTextArea textArea;

JCheckBox c1,c2,c3,c4;

String[] countryList={"Pakistan","India","Australia","England","Sri Lanka","Bangladesh","New Zealand"};

JComboBox<String> comboBox=new JComboBox<>(countryList);

JRadioButton r1,r2;

JButton b1,b2,b3,b4;

ButtonGroup buttonGroup1,buttonGroup2;

JSONObject jsonObject=new JSONObject();

Lab\_13\_Task()

{

frame=new JFrame("Student Registration");

panel=new JPanel();

name=new JLabel("Name: ");

roll=new JLabel("Roll Number: ");

batch=new JLabel("Batch: ");

section=new JLabel("Section: ");

gender=new JLabel("Gender: ");

qualification=new JLabel("Qualification");

address=new JLabel("Address");

country=new JLabel("Country");

c1=new JCheckBox("Matric");

c2=new JCheckBox("Intermediate");

c3=new JCheckBox("Graduate");

c4=new JCheckBox("Post Graduate");

buttonGroup1=new ButtonGroup();

buttonGroup2=new ButtonGroup();

t1=new JTextField();

t2=new JTextField();

t3=new JTextField();

t4=new JTextField();

textArea=new JTextArea();

r1=new JRadioButton("Male");

r2=new JRadioButton("Female");

b1=new JButton("Save");

b2=new JButton("Print");

b3=new JButton("Database");

b4=new JButton("Show Database");

panel.setLayout(null);

frame.setSize(700,700);

panel.setSize(700,700);

panel.setBackground(Color.yellow);

name.setBounds(50,50,100,50);

roll.setBounds(50,100,100,50);

batch.setBounds(50,150,100,50);

section.setBounds(50,200,100,50);

gender.setBounds(50,250,100,50);

qualification.setBounds(50,300,100,50);

address.setBounds(50,400,100,50);

country.setBounds(50,490,100,50);

c1.setBounds(180,310,100,30);

c2.setBounds(330,310,100,30);

c3.setBounds(180,360,100,30);

c4.setBounds(330,360,120,30);

t1.setBounds(180,60,150,30);

t2.setBounds(180,110,150,30);

t3.setBounds(180,160,150,30);

t4.setBounds(180,210,150,30);

textArea.setBounds(180,400,220,75);

comboBox.setBounds(180,500,200,30);

comboBox.setEditable(false);

r1.setBounds(180,260,70,30);

r2.setBounds(280,260,70,30);

b1.setBounds(50,600,70,30);

b2.setBounds(140,600,70,30);

b3.setBounds(230,600,70,30);

b4.setBounds(320,600,130,30);

buttonGroup1.add(r1);

buttonGroup1.add(r2);

buttonGroup2.add(c1);

buttonGroup2.add(c2);

buttonGroup2.add(c3);

buttonGroup2.add(c4);

panel.add(name);

panel.add(roll);

panel.add(batch);

panel.add(section);

panel.add(gender);

panel.add(qualification);

panel.add(address);

panel.add(country);

panel.add(c1);

panel.add(c2);

panel.add(c3);

panel.add(c4);

panel.add(t1);

panel.add(t2);

panel.add(t3);

panel.add(t4);

panel.add(textArea);

panel.add(comboBox);

panel.add(r1);

panel.add(r2);

panel.add(b1);

panel.add(b2);

panel.add(b3);

panel.add(b4);

frame.add(panel);

frame.setVisible(true);

frame.setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

b1.addActionListener(new ActionListener() {

@Override

public void actionPerformed(ActionEvent e) {

saveData();

}

});

b2.addActionListener(new ActionListener() {

@Override

public void actionPerformed(ActionEvent e) {

showData();

}

});

b3.addActionListener(new ActionListener(){

@Override

public void actionPerformed(ActionEvent e){

database();

}

});

b4.addActionListener(new ActionListener() {

@Override

public void actionPerformed(ActionEvent e) {

showDatabase();

frame.dispose();

}

});

}

public void saveData()

{

String gender;

String qualification;

if(c1.isSelected())qualification="Matric";

else if(c2.isSelected())qualification="Intermediate";

else if(c3.isSelected())qualification="Graduate";

else qualification="Post Graduate";

if(r1.isSelected())gender="Male";

else gender="Female";

String name=t1.getText();

String rollNumber=t2.getText();

String batch=t3.getText();

String section=t4.getText();

String country=(String)comboBox.getSelectedItem();

String address=textArea.getText();

jsonObject.put("Name",name);

jsonObject.put("RollNumber",rollNumber);

jsonObject.put("Batch",batch);

jsonObject.put("Section",section);

jsonObject.put("Gender",gender);

jsonObject.put("Qualification",qualification);

jsonObject.put("Country",country);

jsonObject.put("Address",address);

try {

FileWriter file=new FileWriter("MyFile.json");

file.write(jsonObject.toJSONString());

file.close();

JOptionPane.showMessageDialog(null,"Data stored successfully.");

}catch(Exception e)

{

JOptionPane.showMessageDialog(null,e.getMessage());

}

}

public void showData()

{

try {

JSONParser parser = new JSONParser();

Object obj = parser.parse(new FileReader("MyFile.json"));

JSONObject object = (JSONObject) obj;

String name = (String) object.get("Name");

String rollNumber = (String) object.get("RollNumber");

String batch = (String) object.get("Batch");

String section = (String) object.get("Section");

String gender = (String) object.get("Gender");

String qualification = (String) object.get("Qualification");

String country = (String) object.get("Country");

String address = (String) object.get("Address");

frame.remove(panel);

Panel panel1 = new Panel();

panel1.setLayout(null);

panel1.setBackground(Color.orange);

panel1.setSize(700, 700);

JLabel l1, l2, l3, l4, l5, l6, l7, l8;

l1 = new JLabel("Name : " + name);

l2 = new JLabel("Roll #: " + rollNumber);

l3 = new JLabel("Batch: " + batch);

l4 = new JLabel("Section: " + section);

l5 = new JLabel("Gender: " + gender);

l6 = new JLabel("Qualification: " + qualification);

l7 = new JLabel("Country: " + country);

l8 = new JLabel("Address: " + address);

l1.setBounds(10, 20, 200, 50);

l2.setBounds(10, 70, 200, 50);

l3.setBounds(10, 120, 200, 50);

l4.setBounds(10, 170, 200, 50);

l5.setBounds(10, 220, 200, 50);

l6.setBounds(10, 270, 200, 50);

l7.setBounds(10, 320, 200, 50);

l8.setBounds(10, 370, 200, 50);

panel1.add(l1);

panel1.add(l2);

panel1.add(l3);

panel1.add(l4);

panel1.add(l5);

panel1.add(l6);

panel1.add(l7);

panel1.add(l8);

frame.add(panel1);

frame.setVisible(true);

frame.setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

}catch(Exception e)

{

JOptionPane.showMessageDialog(null,e.getMessage());

}

}

public void database(){

try{

String query="insert into students(Name,RollNumber,Batch,Section,Gender,Qualification,Country,Address) values(?,?,?,?,?,?,?,?)";

PreparedStatement ps=connection.prepareStatement(query);

String gender;

if(r1.isSelected())gender="Male";

else gender="Female";

String qualify;

if(c1.isSelected())qualify="Matric";

else if(c2.isSelected())qualify="Intermediate";

else if(c3.isSelected())qualify="Graduation";

else qualify="Post Graduate";

ps.setString(1,t1.getText());

ps.setString(2,t2.getText());

ps.setString(3,t3.getText());

ps.setString(4,t4.getText());

ps.setString(5,gender);

ps.setString(6,qualify);

ps.setString(8,textArea.getText());

ps.setString(7,comboBox.getSelectedItem().toString());

ps.executeUpdate();

JOptionPane.showMessageDialog(null,"Data stored successfully");

// frame.dispose();

}catch(Exception e){

JOptionPane.showMessageDialog(null,e.getMessage());

System.exit(0);

}

}

public void showDatabase(){

String Name=JOptionPane.showInputDialog(null,"Enter name");

try{

Statement st=connection.createStatement();

String query="select \* from students where Name = '"+Name+"'";

ResultSet rs=st.executeQuery(query);

while(rs.next()){

String name=rs.getString("Name");

String rollNumber=rs.getString("RollNumber");

String batch=rs.getString("Batch");

String section=rs.getString("Section");

String gender=rs.getString("Gender");

String qualification=rs.getString("Qualification");

String address=rs.getString("Address");

String country=rs.getString("Country");

JFrame frame1=new JFrame("Student Registration");

JPanel panel1 = new JPanel(null);

// panel1.setLayout(null);

frame1.setSize(700,700);

panel1.setBackground(Color.orange);

panel1.setSize(700, 700);

JLabel l1, l2, l3, l4, l5, l6, l7, l8;

l1 = new JLabel("Name : " + name);

l2 = new JLabel("Roll #: " + rollNumber);

l3 = new JLabel("Batch: " + batch);

l4 = new JLabel("Section: " + section);

l5 = new JLabel("Gender: " + gender);

l6 = new JLabel("Qualification: " + qualification);

l7 = new JLabel("Country: " + country);

l8 = new JLabel("Address: " + address);

l1.setBounds(10, 20, 200, 50);

l2.setBounds(10, 70, 200, 50);

l3.setBounds(10, 120, 200, 50);

l4.setBounds(10, 170, 200, 50);

l5.setBounds(10, 220, 200, 50);

l6.setBounds(10, 270, 200, 50);

l7.setBounds(10, 320, 200, 50);

l8.setBounds(10, 370, 200, 50);

panel1.add(l1);

panel1.add(l2);

panel1.add(l3);

panel1.add(l4);

panel1.add(l5);

panel1.add(l6);

panel1.add(l7);

panel1.add(l8);

frame1.add(panel1);

frame1.setVisible(true);

frame1.setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

}

}catch(Exception e){

JOptionPane.showMessageDialog(null,e.getMessage());

System.exit(0);

}

}

public static void main(String[] args) {

try {

Class.forName("com.mysql.jdbc.Driver");

connection = DriverManager.getConnection("jdbc:mysql://localhost:3306/mydb", "root", "sajida@@01"); // securing Password for safety purpose

}catch(Exception ex) {

JOptionPane.showMessageDialog(null,ex.getMessage());

//System.exit(0);

}

Lab\_13\_Task gui=new Lab\_13\_Task();

}

}

Graphical user interface, text

Description automatically generated

Graphical user interface

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