**Lab Task # 13**

Task # 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) e.g., Radio Button

6. Qualification (must be a choice object) e.g., Check Box

7. Address (must have multiple lines) e.g., Text Area

8. Country (must be list item) e.g., Combo Box

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 contains 4 Marks. Two to complete task with JSON file and colorful GUI and 1 to upload it on GitHub. And 1 for database implementation.

The GUI must look like the following screenshot.

Answer:

This is the Main Class

import java.awt.\*;  
  
public class Main {  
public static void main(String[] args) {  
EventQueue.*invokeLater*(new Runnable() {  
public void run() {  
try {  
 Task window = new Task();  
window.frame.setVisible(true);  
} catch (Exception e) {  
e.printStackTrace();  
}  
 }  
 });  
}  
}

This is the Task Class

import org.json.simple.JSONObject;  
  
import javax.swing.\*;  
import java.awt.\*;  
import java.awt.event.ActionEvent;  
import java.awt.event.ActionListener;  
import java.io.FileNotFoundException;  
import java.io.FileWriter;  
import java.io.IOException;  
import java.sql.Connection;  
import java.sql.DriverManager;  
import java.sql.PreparedStatement;  
  
class Task {  
  
JFrameframe;  
 private JTextFieldtextField;  
 private JTextFieldtextField\_1;  
 private JTextFieldtextField\_2;  
 private JTextFieldtextField\_3;  
 private JRadioButtonrdbtnNewRadioButton\_1;  
 private JTextFieldtextField\_4;  
 private JCheckBoxchckbxNewCheckBox;  
 private JCheckBoxchckbxNewCheckBox\_1;  
 private JCheckBoxchckbxNewCheckBox\_2;  
 private JCheckBoxchckbxNewCheckBox\_3;  
JButtonDatabase = new JButton();  
JButtonClear = new JButton();  
  
  
 public Task() {  
 initialize();  
}  
  
private void initialize() {  
frame = new JFrame();  
frame.getContentPane().setBackground(Color.*CYAN*);  
frame.getContentPane().setLayout(null);  
  
JLabellblNewLabel = new JLabel("Name :");  
lblNewLabel.setBounds(67, 11, 46, 14);  
frame.getContentPane().add(lblNewLabel);  
  
JLabel lblNewLabel\_1 = new JLabel("Roll No");  
lblNewLabel\_1.setBounds(67, 50, 46, 14);  
frame.getContentPane().add(lblNewLabel\_1);  
  
JLabel lblNewLabel\_2 = new JLabel("Batch");  
lblNewLabel\_2.setBounds(67, 87, 46, 14);  
frame.getContentPane().add(lblNewLabel\_2);  
  
JLabel lblNewLabel\_3 = new JLabel("Section");  
lblNewLabel\_3.setBounds(67, 132, 46, 14);  
frame.getContentPane().add(lblNewLabel\_3);  
  
JLabel lblNewLabel\_4 = new JLabel("Gender");  
lblNewLabel\_4.setBounds(67, 178, 46, 14);  
frame.getContentPane().add(lblNewLabel\_4);  
  
ButtonGroup g=new ButtonGroup();  
JRadioButtonrdbtnNewRadioButton = new JRadioButton("Male");  
rdbtnNewRadioButton.setBounds(144, 174, 109, 23);  
frame.getContentPane().add(rdbtnNewRadioButton);  
  
rdbtnNewRadioButton\_1 = new JRadioButton("Female");  
rdbtnNewRadioButton\_1.setBounds(261, 174, 109, 23);  
frame.getContentPane().add(rdbtnNewRadioButton\_1);  
  
g.add(rdbtnNewRadioButton);  
g.add(rdbtnNewRadioButton\_1);  
  
textField= new JTextField();  
textField.setBounds(136, 129, 86, 20);  
frame.getContentPane().add(textField);  
textField.setColumns(10);  
  
textField\_1 = new JTextField();  
textField\_1.setBounds(136, 84, 86, 20);  
frame.getContentPane().add(textField\_1);  
textField\_1.setColumns(10);  
  
textField\_2 = new JTextField();  
textField\_2.setBounds(136, 47, 86, 20);  
frame.getContentPane().add(textField\_2);  
textField\_2.setColumns(10);  
  
textField\_3 = new JTextField();  
textField\_3.setBounds(136, 8, 156, 20);  
frame.getContentPane().add(textField\_3);  
textField\_3.setColumns(10);  
  
JComboBoxcomboBox = new JComboBox();  
comboBox.setBounds(144, 378, 131, 22);  
comboBox.addItem("Pakistan");  
comboBox.addItem("Turkey");  
comboBox.addItem("America");  
comboBox.addItem("England");  
comboBox.addItem("Malaysia");  
frame.getContentPane().add(comboBox);  
  
  
  
JButtonbtnNewButton = new JButton("Save");  
btnNewButton.addActionListener(new ActionListener() {  
public void actionPerformed(ActionEvent e) {  
 String Gender;  
String Qualification="a";  
String Country="";  
  
JSONObjectStudentDetails = new JSONObject();  
StudentDetails.put("Name",textField\_3.getText());  
StudentDetails.put("Roll No",textField\_2.getText());  
StudentDetails.put("Batch",textField\_1.getText());  
StudentDetails.put("Section",textField.getText());  
 if(rdbtnNewRadioButton.isSelected()){  
 Gender=rdbtnNewRadioButton.getText();  
StudentDetails.put("Gender",rdbtnNewRadioButton.getText());}  
else {  
 Gender=rdbtnNewRadioButton\_1.getText();  
StudentDetails.put("Gender",rdbtnNewRadioButton\_1.getText());  
}  
if(chckbxNewCheckBox.isSelected()){  
 Qualification=chckbxNewCheckBox.getText();  
StudentDetails.put("Qualification",chckbxNewCheckBox.getText());  
}  
else if(chckbxNewCheckBox\_1.isSelected()){  
 Qualification=chckbxNewCheckBox\_1.getText();  
StudentDetails.put("Qualification",chckbxNewCheckBox\_1.getText());  
}  
else if(chckbxNewCheckBox\_2.isSelected()){  
 Qualification=chckbxNewCheckBox\_2.getText();  
StudentDetails.put("Qualification",chckbxNewCheckBox\_2.getText());  
}  
else if(chckbxNewCheckBox\_3.isSelected()){  
 Qualification=chckbxNewCheckBox\_3.getText();  
StudentDetails.put("Qualification",chckbxNewCheckBox\_3.getText());  
}  
StudentDetails.put("Address",textField\_4.getText());  
StudentDetails.put("Country",comboBox.getItemAt(comboBox.getSelectedIndex()).toString());  
Country=comboBox.getItemAt(comboBox.getSelectedIndex()).toString();  
String name=textField\_3.getText();  
String rollNo=textField\_2.getText();  
String batch=textField\_1.getText();  
String section=textField.getText();  
String address=textField\_4.getText();  
JSONObjectStudentObject = new JSONObject();  
StudentObject.put("Student", StudentDetails);  
  
 try {  
 Connection con=DriverManager.*getConnection*("jdbc:mysql://localhost:3306/studentsinformation","root","");  
  
String SQL = "INSERT INTO studentsinformation VALUES (?, ?, ?, ?, ?, ?, ?, ?)";  
PreparedStatement pstmt = con.prepareStatement(SQL);  
pstmt.setString(1, name);  
pstmt.setString(2, rollNo);  
pstmt.setString(3, batch);  
pstmt.setString(4, section);  
pstmt.setString(5, Gender);  
pstmt.setString(6, Qualification);  
pstmt.setString(7, address);  
pstmt.setString(8, Country);  
pstmt.executeUpdate();  
pstmt.close();  
  
  
}  
catch(Exception f) {  
JOptionPane.*showMessageDialog*(null, "Error Occurred "+ f.getMessage());  
}  
  
  
try (FileWriter file = new FileWriter("Student.json")) {  
file.write(StudentObject.toJSONString());  
file.flush();  
  
} catch (IOException g) {  
g.printStackTrace();  
}  
JOptionPane.*showMessageDialog*(null,"Data is Saved!");  
}  
  
  
 });  
btnNewButton.setBounds(203, 417, 89, 23);  
frame.getContentPane().add(btnNewButton);  
  
  
  
JButton btnNewButton\_1 = new JButton("Print");  
btnNewButton\_1.addActionListener(new ActionListener() {  
public void actionPerformed(ActionEvent e) {  
frame.dispose();  
 try {  
 Output p=new Output();  
p.setVisible(true);  
p.textField.setText(textField\_3.getText());  
p.textField\_1.setText(textField\_2.getText());  
p.textField\_2.setText(textField\_1.getText());  
p.textField\_3.setText(textField.getText());  
 if(rdbtnNewRadioButton.isSelected()){  
p.textField\_4.setText(rdbtnNewRadioButton.getText());}  
else {  
p.textField\_4.setText(rdbtnNewRadioButton\_1.getText());  
}  
if(chckbxNewCheckBox.isSelected()){  
p.textField\_5.setText(chckbxNewCheckBox.getText());  
}  
else if(chckbxNewCheckBox\_1.isSelected()){  
p.textField\_5.setText(chckbxNewCheckBox\_1.getText());  
}  
else if(chckbxNewCheckBox\_2.isSelected()){  
p.textField\_5.setText(chckbxNewCheckBox\_2.getText());  
}  
else if(chckbxNewCheckBox\_3.isSelected()){  
p.textField\_5.setText(chckbxNewCheckBox\_3.getText()); }  
  
p.textField\_6.setText(textField\_4.getText());  
p.textField\_7.setText(comboBox.getItemAt(comboBox.getSelectedIndex()).toString());  
  
  
} catch (FileNotFoundException ex) {  
throw new RuntimeException(ex);  
}  
  
 }  
 });  
btnNewButton\_1.setBounds(333, 417, 89, 23);  
frame.getContentPane().add(btnNewButton\_1);  
  
Database = new JButton("DataBase");  
Database.setBounds(450,417,89,23);  
Database.addActionListener(new ActionListener() {  
@Override  
public void actionPerformed(ActionEvent e) {  
JOptionPane.*showMessageDialog*(null,"Data Has been saved into DataBase.");  
}  
 });  
frame.add(Database);  
  
Clear = new JButton("Clear");  
Clear.setBounds(100,417,89,23);  
Clear.addActionListener(new ActionListener() {  
@Override  
public void actionPerformed(ActionEvent e) {  
frame.dispose();  
Task window = new Task();  
window.frame.setVisible(true);  
}  
 });  
frame.add(Clear);  
  
JLabel lblNewLabel\_5 = new JLabel("Qualification");  
lblNewLabel\_5.setBounds(67, 230, 66, 14);  
frame.getContentPane().add(lblNewLabel\_5);  
  
chckbxNewCheckBox= new JCheckBox("Matriculation");  
chckbxNewCheckBox.addActionListener(new ActionListener() {  
public void actionPerformed(ActionEvent e) {  
if(chckbxNewCheckBox\_1.isSelected()){  
chckbxNewCheckBox\_1.setSelected(false);  
}  
if(chckbxNewCheckBox\_2.isSelected()){  
chckbxNewCheckBox\_2.setSelected(false);  
}  
  
if(chckbxNewCheckBox\_3.isSelected()){  
chckbxNewCheckBox\_3.setSelected(false);  
}  
 }  
 });  
chckbxNewCheckBox.setBounds(144, 226, 97, 23);  
frame.getContentPane().add(chckbxNewCheckBox);  
  
chckbxNewCheckBox\_1 = new JCheckBox("Intermediate");  
chckbxNewCheckBox\_1.addActionListener(new ActionListener() {  
public void actionPerformed(ActionEvent e) {  
if(chckbxNewCheckBox.isSelected()){  
chckbxNewCheckBox.setSelected(false);  
}  
if(chckbxNewCheckBox\_2.isSelected()){  
chckbxNewCheckBox\_2.setSelected(false);  
}  
  
if(chckbxNewCheckBox\_3.isSelected()){  
chckbxNewCheckBox\_3.setSelected(false);  
}  
 }  
 });  
chckbxNewCheckBox\_1.setBounds(261, 226, 97, 23);  
frame.getContentPane().add(chckbxNewCheckBox\_1);  
  
chckbxNewCheckBox\_2 = new JCheckBox("Graduate");  
chckbxNewCheckBox\_2.addActionListener(new ActionListener() {  
public void actionPerformed(ActionEvent e) {  
if(chckbxNewCheckBox\_1.isSelected()){  
chckbxNewCheckBox\_1.setSelected(false);  
}  
if(chckbxNewCheckBox.isSelected()){  
chckbxNewCheckBox.setSelected(false);  
}  
  
if(chckbxNewCheckBox\_3.isSelected()){  
chckbxNewCheckBox\_3.setSelected(false);  
}  
 }  
 });  
chckbxNewCheckBox\_2.setBounds(144, 264, 97, 23);  
frame.getContentPane().add(chckbxNewCheckBox\_2);  
  
chckbxNewCheckBox\_3 = new JCheckBox("Post Graduate");  
chckbxNewCheckBox\_3.addActionListener(new ActionListener() {  
public void actionPerformed(ActionEvent e) {  
if(chckbxNewCheckBox\_1.isSelected()){  
chckbxNewCheckBox\_1.setSelected(false);  
}  
if(chckbxNewCheckBox\_2.isSelected()){  
chckbxNewCheckBox\_2.setSelected(false);  
}  
  
if(chckbxNewCheckBox.isSelected()){  
chckbxNewCheckBox.setSelected(false);  
}  
 }  
 });  
chckbxNewCheckBox\_3.setBounds(261, 264, 97, 23);  
frame.getContentPane().add(chckbxNewCheckBox\_3);  
  
JLabel lblNewLabel\_6 = new JLabel("Address");  
lblNewLabel\_6.setBounds(67, 309, 46, 14);  
frame.getContentPane().add(lblNewLabel\_6);  
  
textField\_4 = new JTextField();  
textField\_4.setBounds(144, 306, 370, 41);  
frame.getContentPane().add(textField\_4);  
textField\_4.setColumns(10);  
  
  
JLabel lblNewLabel\_7 = new JLabel("Country");  
lblNewLabel\_7.setBounds(67, 382, 46, 14);  
frame.getContentPane().add(lblNewLabel\_7);  
frame.setBounds(100, 100, 660, 490);  
frame.setDefaultCloseOperation(JFrame.*EXIT\_ON\_CLOSE*);  
}  
}

This is the Output Class

import javax.swing.\*;  
import javax.swing.border.EmptyBorder;  
import java.awt.\*;  
import java.io.FileNotFoundException;  
  
public class Output extends JFrame {  
  
private JPanelcontentPane;  
 public JTextFieldtextField;  
 public JTextFieldtextField\_1;  
 public JTextFieldtextField\_2;  
 public JTextFieldtextField\_3;  
 public JTextFieldtextField\_4;  
 public JTextFieldtextField\_5;  
 public JTextFieldtextField\_6;  
 public JTextFieldtextField\_7;  
Task t=new Task();  
  
 public Output() throws FileNotFoundException {  
setDefaultCloseOperation(JFrame.*EXIT\_ON\_CLOSE*);  
setBounds(100, 100, 605, 490);  
contentPane= new JPanel();  
contentPane.setBackground(new Color(0, 255, 0));  
contentPane.setBorder(new EmptyBorder(5, 5, 5, 5));  
setContentPane(contentPane);  
contentPane.setLayout(null);  
  
JLabellblNewLabel = new JLabel("Name");  
lblNewLabel.setBounds(147, 11, 46, 14);  
contentPane.add(lblNewLabel);  
  
textField= new JTextField();  
textField.setBounds(228, 11, 86, 20);  
contentPane.add(textField);  
textField.setColumns(10);  
textField.setEditable(false);  
  
textField\_1 = new JTextField();  
textField\_1.setBounds(228, 53, 86, 20);  
contentPane.add(textField\_1);  
textField\_1.setColumns(10);  
textField\_1.setEditable(false);  
  
  
textField\_2 = new JTextField();  
textField\_2.setBounds(228, 104, 86, 20);  
contentPane.add(textField\_2);  
textField\_2.setColumns(10);  
textField\_2.setEditable(false);  
  
  
textField\_3 = new JTextField();  
textField\_3.setBounds(228, 163, 86, 20);  
contentPane.add(textField\_3);  
textField\_3.setColumns(10);  
textField\_3.setEditable(false);  
  
textField\_4 = new JTextField();  
textField\_4.setBounds(228, 213, 86, 20);  
contentPane.add(textField\_4);  
textField\_4.setColumns(10);  
textField\_4.setEditable(false);  
  
textField\_5 = new JTextField();  
textField\_5.setBounds(228, 267, 86, 20);  
contentPane.add(textField\_5);  
textField\_5.setColumns(10);  
textField\_5.setEditable(false);  
  
  
textField\_6 = new JTextField();  
textField\_6.setBounds(228, 317, 338, 42);  
contentPane.add(textField\_6);  
textField\_6.setColumns(10);  
textField\_6.setEditable(false);  
  
textField\_7 = new JTextField();  
textField\_7.setBounds(228, 420, 80, 20);  
contentPane.add(textField\_7);  
textField\_7.setColumns(10);  
textField\_7.setEditable(false);  
  
JLabel lblNewLabel\_1 = new JLabel("Roll No");  
lblNewLabel\_1.setBounds(147, 56, 46, 14);  
contentPane.add(lblNewLabel\_1);  
  
JLabel lblNewLabel\_2 = new JLabel("batch");  
lblNewLabel\_2.setBounds(147, 107, 46, 14);  
contentPane.add(lblNewLabel\_2);  
  
JLabel lblNewLabel\_3 = new JLabel("Gender");  
lblNewLabel\_3.setBounds(147, 166, 46, 14);  
contentPane.add(lblNewLabel\_3);  
  
JLabel lblNewLabel\_4 = new JLabel("Section");  
lblNewLabel\_4.setBounds(147, 216, 46, 14);  
contentPane.add(lblNewLabel\_4);  
  
JLabel lblNewLabel\_5 = new JLabel("Qualification");  
lblNewLabel\_5.setBounds(147, 270, 71, 14);  
contentPane.add(lblNewLabel\_5);  
  
JLabel lblNewLabel\_6 = new JLabel("Address");  
lblNewLabel\_6.setBounds(147, 320, 46, 14);  
contentPane.add(lblNewLabel\_6);  
  
JLabel lblNewLabel\_7 = new JLabel("Country");  
lblNewLabel\_7.setBounds(147, 423, 46, 14);  
contentPane.add(lblNewLabel\_7);  
  
  
}}

This is the JSON File.

{"Student":{"Qualification":"Intermediate","Address":"Jamshoro","Batch":"21","Roll No":"21SW008","Country":"Pakistan","Gender":"Male","Section":"1","Name":"Zahoor"}}

Output:

Table in Database ---> My SQL

Performed by Zahoor Ahmed

Roll Number: **21SW008**