Vishwakarma Institute of Technology, Pune-37

(An autonomous Institute of Savitribai Phule Pune University)

Department of Multidisciplinary

Engineering

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Problem Statement :

Implement various operations like add, update and delete the data using JDBC Connectivity.

JDBC (Java Database Connectivity) is an API (Application Programming Interface) that provides a standard interface for connecting Java applications with databases. It allows Java programs to interact with a wide range of databases, such as MySQL, Oracle, SQL Server, and more.

To establish a JDBC connection, you need to perform the following steps:

1. Load the JDBC driver: You can load the driver using the Class.forName() method.

2. Open a connection: Once you have loaded the driver class, you can use the DriverManager.getConnection() method to open a connection to the database.

3. Execute SQL statements: Once the connection is established, you can execute SQL statements such as SELECT, INSERT, UPDATE, DELETE, etc. using a Statement object or a PreparedStatement object.

4. Handle results: When executing a SELECT statement, you can retrieve the results using a ResultSet object. You can iterate over the result set using a loop and retrieve the values for each column in the current row.

5. Close the connection: Once you are done with the database operations, it is important to close the connection to release the resources used by the connection.

Program :

```java
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;
import javax.swing.table.*;
import javax.swing.table.DefaultTableModel;
import java.sql.*;
import java.sql.ResultSet;

public class profile extends JFrame implements ActionListener
{

    JFrame jf;
    JLabel l1,l2,l3,l4,l5,l6,l7;
    JTextField t1,t3,t4,t5,t6;
    JPasswordField  t2;
    JComboBox <String> c1;
    Connection con;
    PreparedStatement ps;
    Statement stmt;
    ResultSet rs;
    JRadioButton r1,r2,r3;
    JButton b0,b1,b2,b3,b4;
    profile()
    {
        jf = new JFrame();

        l1=new JLabel("Profile");
        l1.setFont(new Font("Times New Roman",Font.BOLD,25));
        l1.setHorizontalAlignment(JLabel.CENTER);
        l1.setBounds(0,50,500,40);l1.setForeground(Color.black);
        jf.add(l1);


        l2=new JLabel("Username: ");
        l2.setFont(new Font("Times New Roman",Font.BOLD,20));
        l2.setBounds(50,100,150,30);l2.setForeground(Color.black);
        jf.add(l2);

        t1=new JTextField(22);
        t1.setBounds(200,105,250,25);t1.setToolTipText("Enter username");
        t1.setFont(new Font("Arial", Font.PLAIN,
15));jf.add(t1);t1.setForeground(Color.black);
```

```java
        l3=new JLabel("Password: ");
        l3.setFont(new Font("Times New Roman",Font.BOLD,20));
        l3.setBounds(50,140,150,30);l3.setForeground(Color.black);
        jf.add(l3);

        t2=new JPasswordField();
        t2.setBounds(200,145,250,25);t2.setToolTipText("Enter Password");
        t2.setFont(new Font("Arial", Font.PLAIN,
15));jf.add(t2);t2.setForeground(Color.black);

        l4=new JLabel("Contact No: ");
        l4.setFont(new Font("Times New Roman",Font.BOLD,20));
        l4.setBounds(50,180,150,30);l4.setForeground(Color.black);
        jf.add(l4);

        t3=new JTextField(22);
        t3.setBounds(200,185,250,25);t3.setToolTipText("Enter Contact No");
        t3.setFont(new Font("Arial", Font.PLAIN,
15));jf.add(t3);t3.setForeground(Color.black);

        l5=new JLabel("Qualification: ");
        l5.setFont(new Font("Times New Roman",Font.BOLD,20));
        l5.setBounds(50,220,150,30);l5.setForeground(Color.black);
        jf.add(l5);

        // Combo Box for Qualification
        c1 = new JComboBox<>();
        c1.addItem("Select Qualification");
        c1.addItem("B.Tech");
        c1.addItem("M.Tech");
        c1.addItem("B.Sc");
        c1.addItem("M.Sc");
        c1.addItem("B.Com");
        c1.addItem("M.Com");
        c1.addItem("B.A");
        c1.addItem("M.A");
        c1.addItem("B.Ed");
        c1.addItem("M.Ed");
        c1.addItem("B.B.A");
        c1.addItem("M.B.A");

        c1.setBounds(200,225,250,25);c1.setToolTipText("Select Qualification");
        c1.setFont(new Font("Arial", Font.PLAIN,
15));jf.add(c1);c1.setForeground(Color.black);
```

```java
        l6=new JLabel("Gender: ");
        l6.setFont(new Font("Times New Roman",Font.BOLD,20));
        l6.setBounds(50,260,150,30);l6.setForeground(Color.black);
        jf.add(l6);

        r1 = new JRadioButton("Male");
        r1.setBounds(200,265,55,30);r1.setForeground(Color.black);
        jf.add(r1);

        r2 = new JRadioButton("Female");
        r2.setBounds(260,265,75,30);r2.setForeground(Color.black);
        jf.add(r2);

        r3 = new JRadioButton("Other");
        r3.setBounds(330,265,65,30);r3.setForeground(Color.black);
        jf.add(r3);

        ButtonGroup bg=new ButtonGroup();
        bg.add(r1);bg.add(r2);bg.add(r3);

        // Add button
        b0 = new JButton("Search");
        b0.setBounds(50,320,90,30);b0.setToolTipText("Add Record");
        b0.setFont(new Font("Arial", Font.PLAIN,
15));jf.add(b0);b0.setForeground(Color.black);
        b0.addActionListener(this);

        b1 = new JButton("Add");
        b1.setBounds(150,320,90,30);b1.setToolTipText("Add Record");
        b1.setFont(new Font("Arial", Font.PLAIN,
15));jf.add(b1);b1.setForeground(Color.black);
        b1.addActionListener(this);

        b2 = new JButton("Update");
        b2.setBounds(250,320,90,30);b2.setToolTipText("Add Record");
        b2.setFont(new Font("Arial", Font.PLAIN,
15));jf.add(b2);b2.setForeground(Color.black);
        b2.addActionListener(this);

        b3 = new JButton("Delete");
        b3.setBounds(350,320,90,30);b1.setToolTipText("Add Record");
        b3.setFont(new Font("Arial", Font.PLAIN,
15));jf.add(b3);b3.setForeground(Color.black);
```

```java
        b3.addActionListener(this);


        jf.setSize(500, 500);
        jf.setLayout(null);
        jf.setVisible(true);
    }

    public void actionPerformed(ActionEvent ae){
        if(ae.getSource()==b0)
        {
            String username = t1.getText();
            String qual = " ";

            if(((t1.getText()).equals("")))
            {
                JOptionPane.showMessageDialog(this,"Please enter username
!","Warning!!!",JOptionPane.WARNING_MESSAGE);
            }
            else
            {
                try{
                    int foundrec = 0;
                    Class.forName("com.mysql.jdbc.Driver");
                    con=DriverManager.getConnection("jdbc:mysql://localhost:3306/
test","root","");

                    System.out.println("Connected to database.");
                    ps=con.prepareStatement("SELECT * FROM profiles WHERE
username=?;");

                    ps.setString(1, username);
                    rs=ps.executeQuery();
                    while(rs.next())
                    {
                        t1.setText(rs.getString(2));
                        t2.setText(rs.getString(3));
                        t3.setText(rs.getString(4));
                        c1.setSelectedItem(rs.getString(5));
                        qual = rs.getString(6);
                        if (qual.equals("Male")) {
                            r1.setSelected(true);
                        }
                        else if (qual.equals("Female")) {
                            r2.setSelected(true);
                        }
                        else{
```

```java
                        r3.setSelected(true);
                    }
                    foundrec = 1;
                }
                if (foundrec == 0)
                {
                    JOptionPane.showMessageDialog(null,"Record is not
available","Dialog",JOptionPane.WARNING_MESSAGE);
                }
                con.close();
            }

        catch(SQLException se)
        {
            System.out.println(se);
            JOptionPane.showMessageDialog(null,"SQL Error:"+se);
        }
        catch(Exception e)
        {
            System.out.println(e);
            JOptionPane.showMessageDialog(null,"Error:"+e);
        }
    }
}

if(ae.getSource()==b1)
{
    String username = t1.getText();
    String password = new String(t2.getPassword());
    String Contact_no = t3.getText();
    String Qualification = (String)c1.getSelectedItem();
    String qual = " ";
    if (r1.isSelected()) {

        qual = "Male";
    }

    else if (r2.isSelected()) {

        qual = "Female";
    }
    else {

        qual = "Other";
    }
```

```java
            if(((t1.getText()).equals(""))||((t2.getPassword()).equals(""))||((t3
.getText()).equals(""))||((c1.getSelectedItem()).equals(""))||((qual).equals(""))
)
            {
                JOptionPane.showMessageDialog(this,"* Detail are Missing
!","Warning!!!",JOptionPane.WARNING_MESSAGE);
            }
            else
            {
               try
                {
                    Class.forName("com.mysql.jdbc.Driver");
                    con=DriverManager.getConnection("jdbc:mysql://localhost:3306/
test","root","");

                    System.out.println("Connected to database.");
                    ps=con.prepareStatement("insert into profiles
(username,password,contact_no,qualification,gender)values(?,?,?,?,?)");
                    ps.setString(1,t1.getText());
                    ps.setString(2,password);
                    ps.setString(3,t3.getText());
                    ps.setString(4,Qualification);
                    ps.setString(5,qual);
                    ps.executeUpdate();

                    int reply=JOptionPane.showConfirmDialog(null,"Profile Is
added successfully! Do you want to another entry","Profile
Added",JOptionPane.YES_NO_OPTION);

                    if (reply == JOptionPane.YES_OPTION)
                    {
                        jf.setVisible(false);
                        new profile();
                    }
                    else if (reply == JOptionPane.NO_OPTION)
                    {
                        jf.setVisible(false);
                    }
                    con.close();
                }

                catch(SQLException se)
                {
                    System.out.println(se);
                    JOptionPane.showMessageDialog(null,"SQL Error:"+se);
```
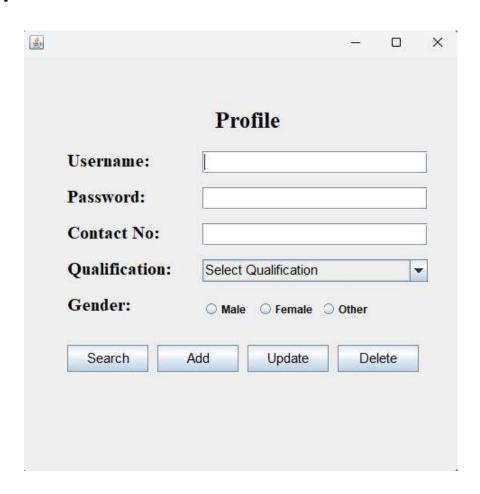
```java
            }
            catch(Exception e)
            {
                System.out.println(e);
                JOptionPane.showMessageDialog(null,"Error:"+e);
            }
        }
    }

    if(ae.getSource()==b2)
    {
        String username = t1.getText();
        String password = new String(t2.getPassword());
        String Contact_no = t3.getText();
        String Qualification = (String)c1.getSelectedItem();
        String qual = " ";
        if (r1.isSelected()) {

            qual = "Male";
        }

        else if (r2.isSelected()) {

            qual = "Female";
        }
        else {

            qual = "Other";
        }

        if(((t1.getText()).equals(""))||((t2.getPassword()).equals(""))||((t3
.getText()).equals(""))||((c1.getSelectedItem()).equals(""))||((qual).equals(""))
)
        {
            JOptionPane.showMessageDialog(this,"* Detail are Missing
!","Warning!!!",JOptionPane.WARNING_MESSAGE);
        }
        else
        {
          try
            {
                Class.forName("com.mysql.jdbc.Driver");
                con=DriverManager.getConnection("jdbc:mysql://localhost:3306/
test","root","");
                System.out.println("Connected to database.");
```

```java
                ps=con.prepareStatement("update profiles set password=?,
contact_no=?, qualification=?, gender=? where username=?");
                ps.setString(5,t1.getText());
                ps.setString(1,password);
                ps.setString(2,t3.getText());
                ps.setString(3,Qualification);
                ps.setString(4,qual);
                ps.executeUpdate();
                int reply=JOptionPane.showConfirmDialog(null,"Profile Is
updated successfully!","Profile Updated",JOptionPane.CLOSED_OPTION);

                if (reply == JOptionPane.CLOSED_OPTION)
                {
                    jf.setVisible(false);
                }
                con.close();
            }
            catch(SQLException se)
            {
                System.out.println(se);
                JOptionPane.showMessageDialog(null,"SQL Error:"+se);
            }
            catch(Exception e)
            {
                System.out.println(e);
                JOptionPane.showMessageDialog(null,"Error:"+e);
            }
        }
    }
    if(ae.getSource()==b3)
    {
        String username = t1.getText();
        String password = new String(t2.getPassword());
        String Contact_no = t3.getText();
        String Qualification = (String)c1.getSelectedItem();
        String qual = " ";
        if (r1.isSelected()) {

            qual = "Male";
        }
        else if (r2.isSelected()) {

            qual = "Female";
        }
        else {
```
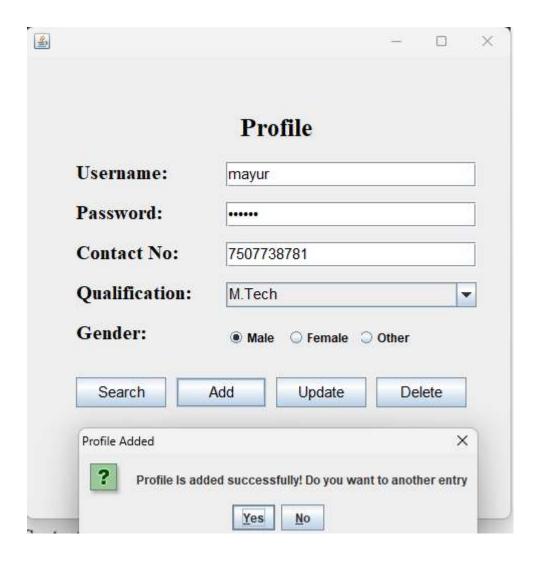
```java
                    qual = "Other";
            }

            if(((t1.getText()).equals("")))
            {
                JOptionPane.showMessageDialog(this,"* Detail are Missing
!","Warning!!!",JOptionPane.WARNING_MESSAGE);
            }
            else
            {
              try
                {
                    Class.forName("com.mysql.jdbc.Driver");
                    con=DriverManager.getConnection("jdbc:mysql://localhost:3306/
test","root","");
                    System.out.println("Connected to database.");
                    ps=con.prepareStatement("delete from profiles where username
= ?");
                    ps.setString(1,t1.getText());
                    ps.executeUpdate();

                    int reply=JOptionPane.showConfirmDialog(null,"Profile Is
Deleted successfully!","Profile Deleted",JOptionPane.CLOSED_OPTION);

                    if (reply == JOptionPane.CLOSED_OPTION)
                    {
                        jf.setVisible(false);
                        new profile();
                    }

                    con.close();
                }

            catch(SQLException se)
            {
                System.out.println(se);
                JOptionPane.showMessageDialog(null,"SQL Error:"+se);
            }
            catch(Exception e)
            {
                System.out.println(e);
                JOptionPane.showMessageDialog(null,"Error:"+e);
            }
        }
```
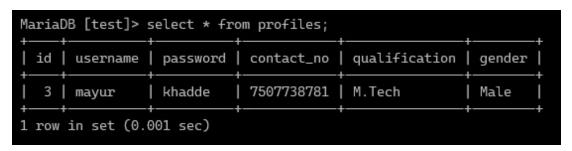
```
        }
    }

    public static void main(String[] args) {
        new profile();
    }
}
```

Output :

Add Profile :

Search Profiles :

Profile

Username: mayur

Password: ••••••

Contact No: 7507738781

Qualification: M.Tech

Gender: ● Male   ○ Female   ○ Other

[Search]   [Add]   [Update]   [Delete]

Update Profile :


```
MariaDB [test]> select * from profiles;
+----+----------+----------+------------+---------------+--------+
| id | username | password | contact_no | qualification | gender |
+----+----------+----------+------------+---------------+--------+
|  3 | mayur    | khadde   | 7507738756 | M.Tech        | Male   |
+----+----------+----------+------------+---------------+--------+
1 row in set (0.001 sec)
```

Delete Profile :


```
MariaDB [test]> select * from profiles;
Empty set (0.000 sec)
```