

Bansilal Ramnath Agarwal Charitable Trust's
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 :

```
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);
```

```

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);

```

```

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);

```

```

        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{

```

```

        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";
    }
}

```

```

        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);
            }
        }
    }
}

```



```

    }
    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.");

```

```

        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 {

```

```

        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 :

The image shows a Java Swing window titled "Profile". The window has a standard title bar with minimize, maximize, and close buttons. The main content area is light gray and contains the following elements:

- Username:** A text label followed by a text input field.
- Password:** A text label followed by a text input field.
- Contact No:** A text label followed by a text input field.
- Qualification:** A text label followed by a dropdown menu with the text "Select Qualification" and a downward arrow.
- Gender:** A text label followed by three radio buttons labeled "Male", "Female", and "Other".
- Buttons:** Four buttons labeled "Search", "Add", "Update", and "Delete" are arranged horizontally at the bottom of the form.

Add Profile :

Profile

Username:

Password:

Contact No:

Qualification:

Gender: ☒ Male ☐ Female ☐ Other

Profile Added

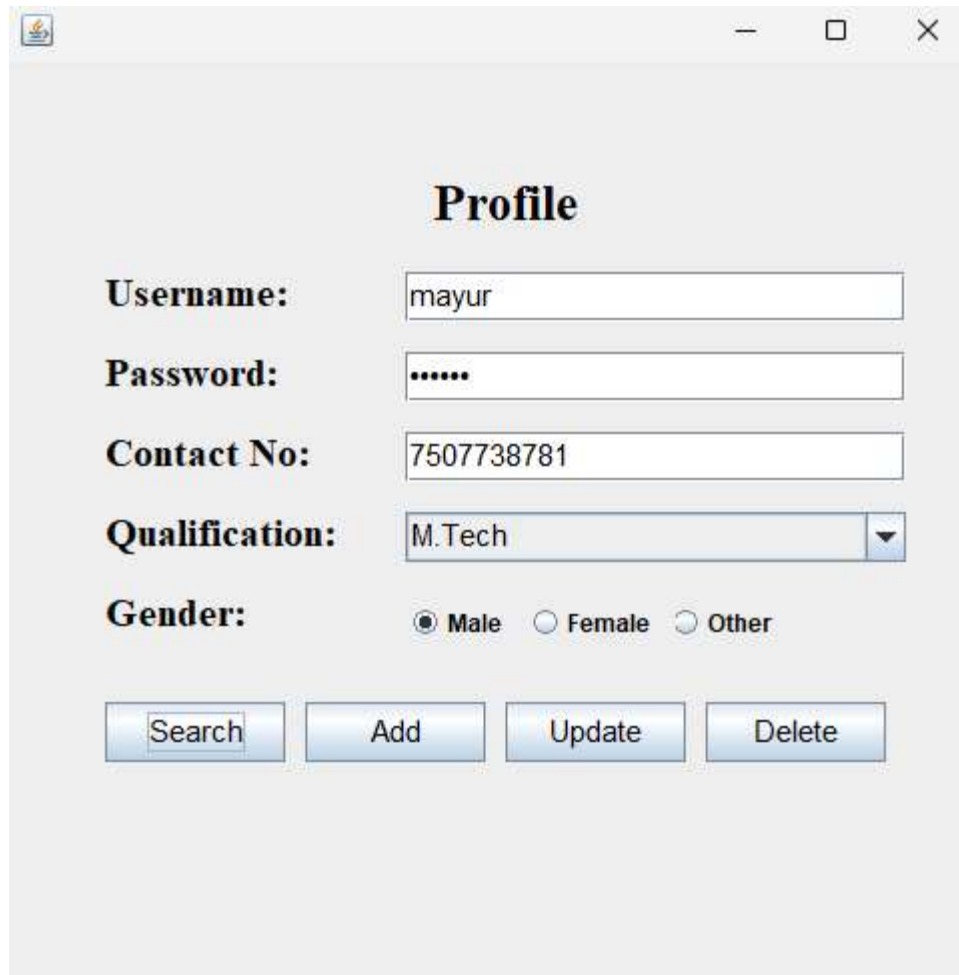
Profile Is added successfully! Do you want to another entry

```
MariaDB [test]> select * from profiles;
```

id	username	password	contact_no	qualification	gender
3	mayur	khadde	7507738781	M.Tech	Male

1 row in set (0.001 sec)

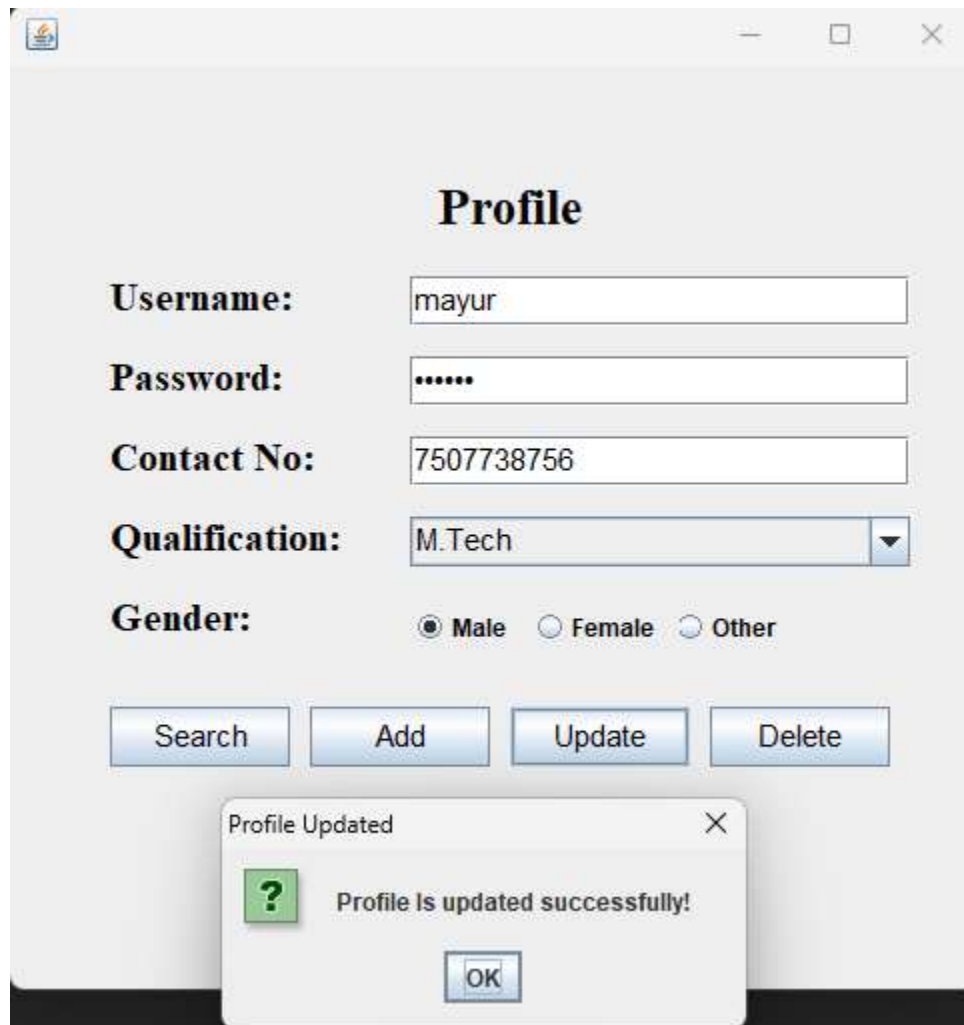
Search Profiles :



The image shows a software window titled "Profile" with a standard Windows-style title bar (minimize, maximize, close buttons). The form contains the following fields and controls:

- Username:** A text input field containing the value "mayur".
- Password:** A text input field containing seven dots ".....", indicating a password.
- Contact No:** A text input field containing the value "7507738781".
- Qualification:** A dropdown menu with "M.Tech" selected.
- Gender:** Three radio buttons labeled "Male", "Female", and "Other". The "Male" radio button is selected.
- Buttons:** Four buttons are located at the bottom: "Search", "Add", "Update", and "Delete".

Update Profile :



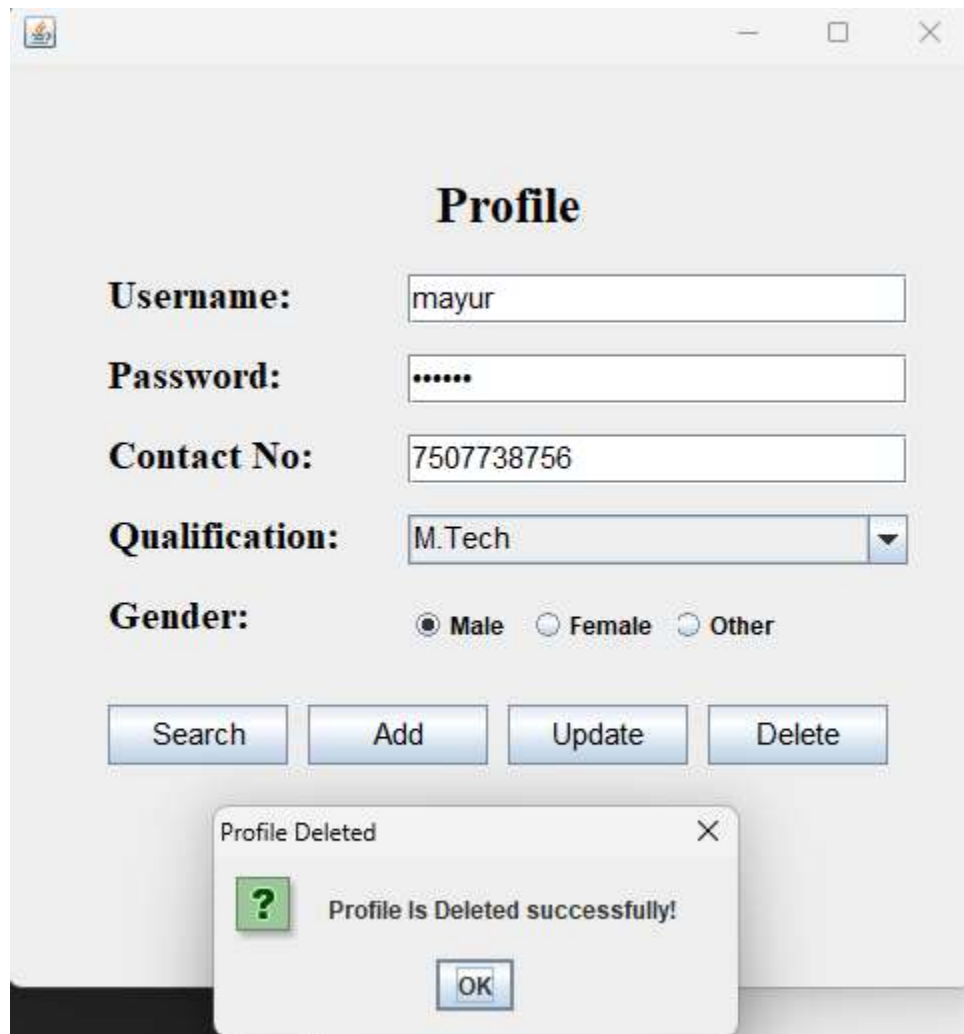
The screenshot shows a web application window titled 'Profile'. It contains several input fields: 'Username' with the value 'mayur', 'Password' with masked characters '.....', 'Contact No.' with the value '7507738756', and 'Qualification' with a dropdown menu showing 'M.Tech'. Below these is a 'Gender' section with three radio buttons: 'Male' (selected), 'Female', and 'Other'. At the bottom of the form are four buttons: 'Search', 'Add', 'Update', and 'Delete'. Overlaid on the bottom of the window is a small dialog box titled 'Profile Updated' with a green question mark icon. The message inside the dialog is 'Profile Is updated successfully!' and it has an 'OK' button.

```
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 :



The screenshot shows a web application window titled 'Profile'. It contains a form with the following fields:

- Username:** mayur
- Password:** (masked)
- Contact No:** 7507738756
- Qualification:** M.Tech (dropdown menu)
- Gender:** ☒ Male ☐ Female ☐ Other

Below the form are four buttons: Search, Add, Update, and Delete. A modal dialog box titled 'Profile Deleted' is open in the foreground, displaying a green question mark icon and the message 'Profile Is Deleted successfully!'. An 'OK' button is at the bottom of the dialog.

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