A

LAB REPORT

ON

ADVANCE JAVA

By

Prajwal Dahal

TU REG no:6-2-388-03-2019

Submitted to:

Mahendra Aryal

Lecturer

Kantipur College of Management and Information Technology

In partial fulfillment of the requirements for the Course

Advance Java

Mid Baneshwor, Kathmandu

June 2023

LAB 1

- **Write a program to create login form using swing framework.**

Objective:

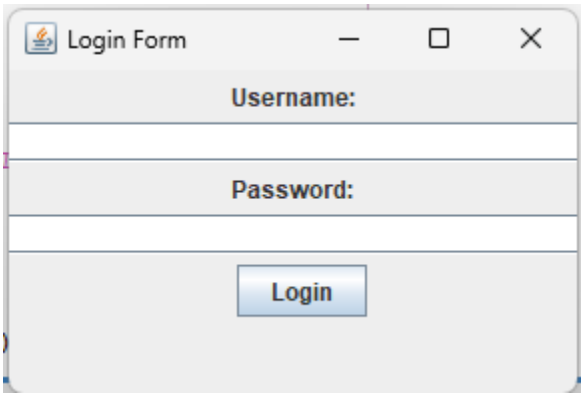
To create a login frame using swing

Source code:

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class LoginForm extends JFrame implements ActionListener {
    private JTextField usernameField;
    private JPasswordField passwordField;
    private JButton loginButton;

    public LoginForm() {
        setTitle("Login Form");
        setSize(300, 200);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setLocationRelativeTo(null);

        JPanel panel = new JPanel();
        panel.setLayout(new GridLayout(3, 2));

        JLabel usernameLabel = new JLabel("Username:");
```

```
        usernameField = new JTextField();
        JLabel passwordLabel = new JLabel("Password:");
        passwordField = new JPasswordField();
        loginButton = new JButton("Login");

        loginButton.addActionListener(this);

        panel.add(usernameLabel);
        panel.add(usernameField);
        panel.add(passwordLabel);
        panel.add(passwordField);
        panel.add(new JLabel()); // Empty label for alignment
        panel.add(loginButton);

        add(panel);

        setVisible(true);
    }

    public static void main(String[] args) {
        SwingUtilities.invokeLater(LoginForm::new);
    }
}
```

Output



Conclusion:

We have created login form using swing framework.

LAB 2

- **Write a program to enable Action to JButton which should fetch username and password from a login form.**

Objective:

To create event handler to fetch username and password from login form

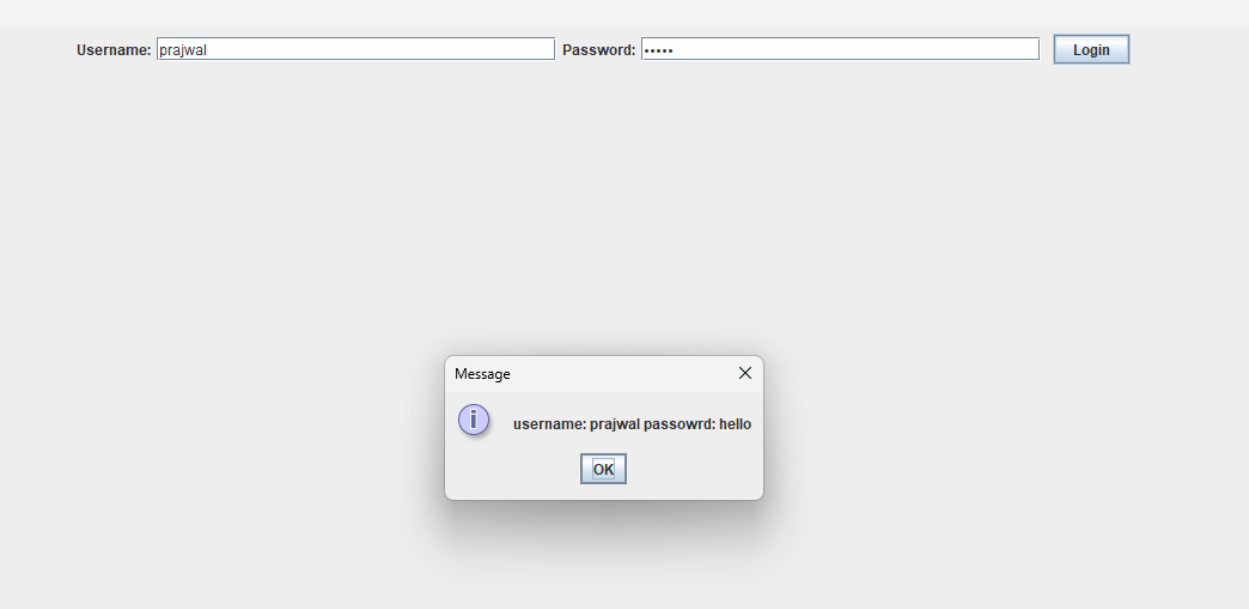
Source code:

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class LoginForm extends JFrame {
    private JTextField usernameField;
    private JPasswordField passwordField;
    private JButton loginButton;

    public LoginForm() {
        setTitle("Login Form");
        setSize(300, 200);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setLocationRelativeTo(null);

        JPanel panel = new JPanel();
```

```
    JLabel usernameLabel = new JLabel("Username:");
    usernameField = new JTextField(30);
    JLabel passwordLabel = new JLabel("Password:");
    passwordField = new JPasswordField(30);
    loginButton = new JButton("Login");
    loginButton.addActionListener(new ActionListener(){
        @Override
        public void actionPerformed(ActionEvent e) {
           loginButtonActionPerformed();
        }
    });

    panel.add(usernameLabel);
    panel.add(usernameField);
    panel.add(passwordLabel);
    panel.add(passwordField);
    panel.add(new JLabel()); // Empty label for alignment
    panel.add(loginButton);

    add(panel);

    setVisible(true);
}

public static void main(String[] args) {
   new LoginForm();
}
private void loginButtonActionPerformed() {
       String uname=usernameField.getText();
```

```
            String pwd=passwordField.getText();
JOptionPane.showMessageDialog(null, "username: "+uname+" passowrd:
"+pwd);
    }
}
```

Output



Conclusion:

We have created login form using swing framework and extract the textfield data using event handler.

LAB 3

➢ Write a program to connect to MYSQL database

Objective:

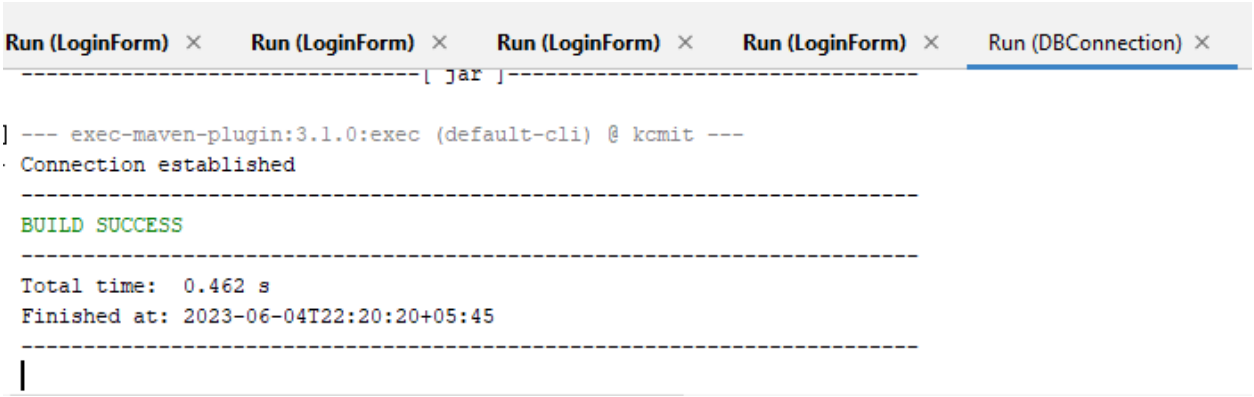
To connect to MYSQL database using JDBC

Source code:

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;
public class DBConnection {
    public DBConnection(){

       try {
            Class.forName("com.mysql.jdbc.Driver");
            Connection c =
DriverManager.getConnection("jdbc:mysql://localhost:3307/mysql","ro
ot","");
            System.out.println("Connection established");
        } catch (Exception ex) {
            System.out.println(ex);
        }

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

```
}
```

Output:



Conclusion:

We have connect to database using JDBC.

➢ Write a program to perform all the CRUD operation with JDBC

Objective:

To perform all crud operation with JDBC

Source code:

```
import java.sql.*;

public class CRUDOperations {
    private static final String URL =
"jdbc:mysql://localhost:3307/advancejava";
    private static final String USERNAME = "root";
    private static final String PASSWORD = "";

    public static void main(String[] args) {
        // Create a connection
        try (Connection connection =
DriverManager.getConnection(URL, USERNAME, PASSWORD)) {
            // Create a table
            createTable(connection);

            // Insert a record
            int id = insertRecord(connection, "John Doe",
"john@example.com");

            // Read records
            readRecords(connection);
```

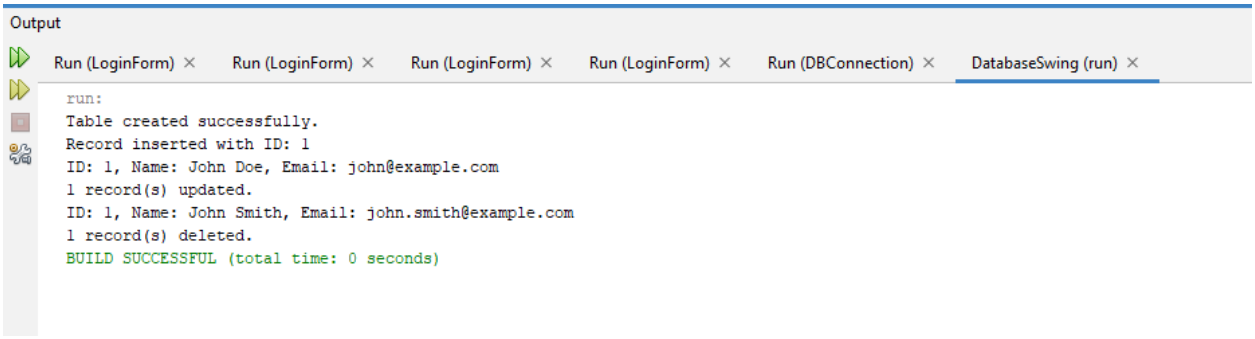
```
            // Update a record
            updateRecord(connection, id, "John Smith",
"john.smith@example.com");

            // Read records again
            readRecords(connection);

            // Delete a record
            deleteRecord(connection, id);

            // Read records again
            readRecords(connection);

        } catch (SQLException e) {
            e.printStackTrace();
        }
    }

    private static void createTable(Connection connection) throws
SQLException {
        String query = "CREATE TABLE IF NOT EXISTS users (id INT
AUTO_INCREMENT PRIMARY KEY, name VARCHAR(100), email
VARCHAR(100))";
        try (Statement statement = connection.createStatement()) {
            statement.execute(query);
            System.out.println("Table created successfully.");
        }
    }
```

```
    private static int insertRecord(Connection connection, String
name, String email) throws SQLException {
        String query = "INSERT INTO users (name, email) VALUES (?,
?)";
        try (PreparedStatement statement =
connection.prepareStatement(query,
Statement.RETURN_GENERATED_KEYS)) {
            statement.setString(1, name);
            statement.setString(2, email);
            statement.executeUpdate();
            ResultSet rs = statement.getGeneratedKeys();
            if (rs.next()) {
                int id = rs.getInt(1);
                System.out.println("Record inserted with ID: " +
id);
                return id;
            }
        }
        return -1;
    }

    private static void readRecords(Connection connection) throws
SQLException {
        String query = "SELECT * FROM users";
        try (Statement statement = connection.createStatement()) {
            ResultSet resultSet = statement.executeQuery(query);
            while (resultSet.next()) {
                int id = resultSet.getInt("id");
                String name = resultSet.getString("name");
                String email = resultSet.getString("email");
```

```
                System.out.println("ID: " + id + ", Name: " + name
+ ", Email: " + email);
            }
        }
    }

    private static void updateRecord(Connection connection, int id,
String name, String email) throws SQLException {
        String query = "UPDATE users SET name = ?, email = ? WHERE
id = ?";
        try (PreparedStatement statement =
connection.prepareStatement(query)) {
            statement.setString(1, name);
            statement.setString(2, email);
            statement.setInt(3, id);
            int rowsUpdated = statement.executeUpdate();
            System.out.println(rowsUpdated + " record(s)
updated.");
        }
    }

    private static void deleteRecord(Connection connection, int id)
throws SQLException {
        String query = "DELETE FROM users WHERE id = ?";
        try (PreparedStatement statement =
connection.prepareStatement(query)) {
            statement.setInt(1, id);
            int rowsDeleted = statement.executeUpdate();
            System.out.println(rowsDeleted + " record(s)
deleted.");
```

```
            }
        }


}
```

Output:



Conclusion:

We have performed CRUD operation in database using JDBC.

LAB 4

- **Write a program to illustrate application of JavaBeans.**

Objective:

To illustrate the application of JavaBeans.

Source code:

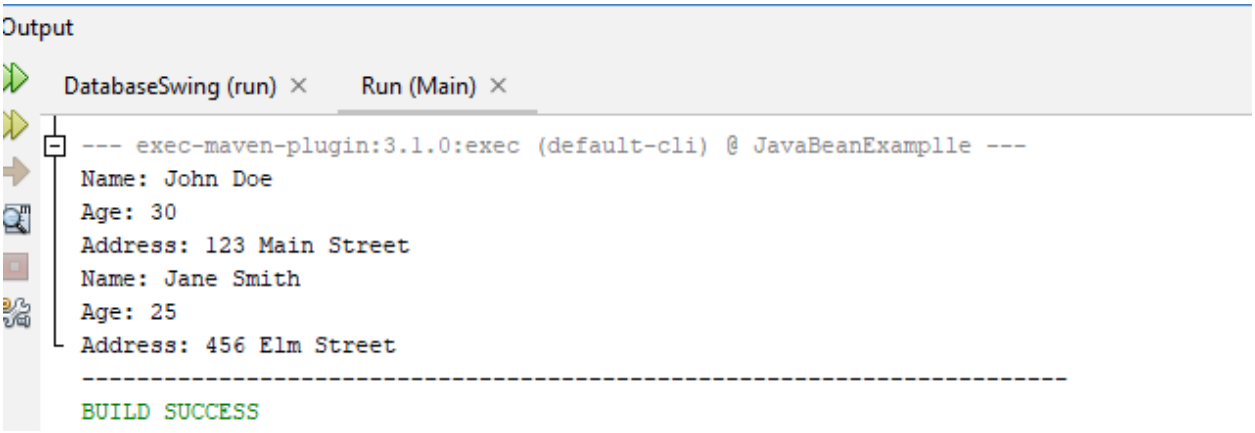
```
public class Person {
    private String name;
    private int age;
    private String address;

    public Person() {
        // Default constructor
    }

    // Getters and Setters

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public int getAge() {
```

```
        return age;
    }

    public void setAge(int age) {
        this.age = age;
    }

    public String getAddress() {
        return address;
    }

    public void setAddress(String address) {
        this.address = address;
    }

    // toString() method

    @Override
    public String toString() {
        return "Person{" +
                "name='" + name + '\'' +
                ", age=" + age +
                ", address='" + address + '\'' +
                '}';
    }
}
public class Main {
    public static void main(String[] args) {
        // Create a new Person object
```

```
Person person = new Person();

// Set the values using the setter methods
person.setName("John Doe");
person.setAge(30);
person.setAddress("123 Main Street");

// Access the values using the getter methods
String name = person.getName();
int age = person.getAge();
String address = person.getAddress();

// Print the values
System.out.println("Name: " + name);
System.out.println("Age: " + age);
System.out.println("Address: " + address);

// Update the values using the setter methods
person.setName("Jane Smith");
person.setAge(25);
person.setAddress("456 Elm Street");

// Access the updated values
name = person.getName();
age = person.getAge();
address = person.getAddress();

// Print the updated values
System.out.println("Name: " + name);
```

```
        System.out.println("Age: " + age);
        System.out.println("Address: " + address);
    }
}
```

Output:



Conclusion:

We have illustrate the example of JavaBean.

LAB 5

- **Write a program to initialize servlet and perform basic reading and writing using JSP.**

Objective:

To initialize servlet and perform basic reading and writing operation.

Source code:

```
import java.io.IOException;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

/**
 *
 * @author prajwal
 */
@WebServlet(urlPatterns = {"/MyServlet"})
public class MyServlet extends HttpServlet {

    protected void processRequest(HttpServletRequest request,
HttpServletResponse response)
            throws ServletException, IOException {
```

```
        System.out.println(request.getParameter("num"));
        int x =Integer.parseInt(request.getParameter("num"));
        int y=Integer.parseInt(request.getParameter("num2"));

        response.getWriter().println(x+y);
    }

    @Override
    public void service(HttpServletRequest request,
HttpServletResponse response)
            throws  IOException, ServletException {
        processRequest(request, response);
    }

}
<%@page contentType="text/html" pageEncoding="windows-1252"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
        <title>Login Page</title>
    </head>
    <body>
        <form action="MyServlet">
            <div><input type="text" placeholder="enter 1st number"
name="num"/></div>
            <div><input type="text" placeholder="enter 2nd number"
name="num2"/></div>
```

```
            <div><input type="submit" value="login"
name="submit"/></div>
        </form>
    </body>
</html>
```

Output:


```
25
```

Conclusion:

We have perform basic read and write operation using JSP from servlet.

LAB 6

➢ Write a program to handle session and cookie in JSP.

Objective:

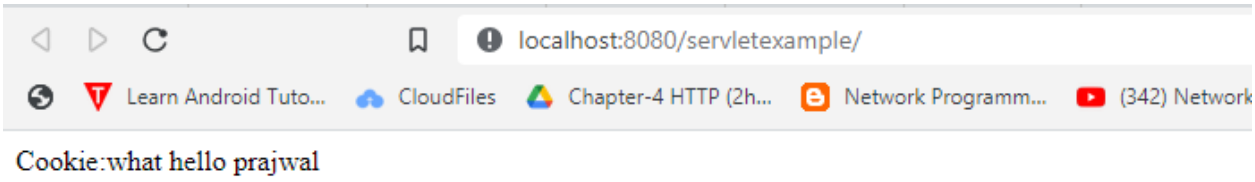
To handle to session and cookie in JSP.

Source code:

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%



    // Create a new cookie
    Cookie newCookie = new Cookie("myCookie", "what");
    newCookie.setMaxAge(3600); // Set the cookie's maximum age in
seconds (e.g., 1 hour)
    newCookie.setPath("/"); // Set the cookie's path ("/" means it
is accessible across the entire website)
    response.addCookie(newCookie);

    //retrieve
    out.println("Cookie:"+newCookie.getValue());

    //deleteCookie
    newCookie.setMaxAge(0);

    response.addCookie(newCookie);
```

```
    //create
    session.setAttribute("username","prajwal");

    //retrieve
    out.println("hello "+session.getAttribute("username"));

    //delete
    session.removeAttribute("username");
%>
```

Output:



Conclusion:

We have handle session and cookie.

LAB 7

➢ Write a program to demonstrate RMI

Objective:

To demonstrate RMI in java

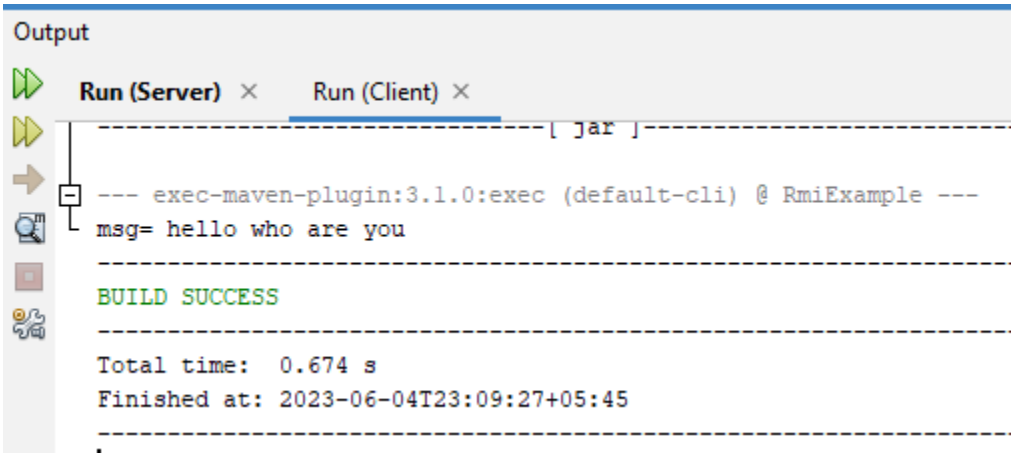
Source code:

```
package com.mycompany.rmiexample;
import java.rmi.RemoteException;
import java.rmi.registry.*;
import java.util.Scanner;
import java.rmi.server.UnicastRemoteObject;
import java.rmi.*;
public interface MessageServices extends Remote {
    public void sendMessage(String msg) throws RemoteException;
    public String recieveMessage()throws RemoteException;
}
public class RemoteAdder extends UnicastRemoteObject implements
MessageServices{
    private String message;

    public RemoteAdder() throws RemoteException{
    }

    @Override
    public void sendMessage(String msg) throws RemoteException {
        this.message=msg;
```

```
    }

    @Override
    public String recieveMessage() throws RemoteException {
        return message;
    }
}

public class Server {
    public static void main(String[] args) {
        try {
            Registry reg = LocateRegistry.createRegistry(9999);
            MessageServices stub = new RemoteAdder();
            reg.rebind("msg",stub);
            Scanner sc = new Scanner(System.in);
            System.out.println("enter a message to send: ");
            String msg = sc.nextLine();
            stub.sendMessage(msg);
        } catch (RemoteException ex) {
            System.out.println(ex.toString());
        }
    }
}

public class Client {
    public static void main(String[] args) {
        try {
            Registry reg
=LocateRegistry.getRegistry("127.0.0.1",9999);
```

```
            MessageServices skeleton=(MessageServices)
reg.lookup("msg");
            System.out.println("msg= "+ skeleton.recieveMessage());
        } catch (NotBoundException | RemoteException ex) {
            System.out.println(ex.toString());
        }
    }
}
```

Output:



Conclusion:

We have demonstrate RMI in java.