UNIVERSITI MALAYSIA TERENGGANU

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CSM3023 -PEMBANGUNAN APLIKASI BERASASKAN WEB

BANCHELOR OF COMPUTER SCIENCE (MOBILE COMPUTING) WITH HONORS

LAB 6 – JSP: Saving and Retrieving Data from Database

SEMESTER 2 2023/2024

_____

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S66467

TASK 1: USING JSP PAGE TO ACCESS A SIMPLE MYSQL DATABASE

SampleInsertionRecord.jsp

```
<%--

    Document  : SampleInsertionRecord

    Created on : 5 Jun 2024, 3:47:32 pm

    Author    : Nur Ezreena

--%>



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

<%@page language="java" %>

<%@page import="java.sql.*" %>

<!DOCTYPE html>

<html>

  <head>

    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

    <title>JSP Page</title>

  </head>

  <body>

    <h1>Lab 6 - Task 1 - Sample Insertion records into MYSQL through JSP's
page</h1>


    <%

      int result;
```

```jsp
    // Step 1: Load JDBC driver

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

    out.println("Step 1 : MySQL driver loaded..!");

%>

<br>

<%

    String myURL = "jdbc:mysql://localhost/lab6_csm3023";

    // Step 2: Establish the connection

    Connection myConnection = DriverManager.getConnection(myURL, "root",
"admin");

    out.println("Step 2 : Database is connected...!");

%>

<br>

<%

    // Step 3: Create a prepared statement

    out.println("Step 3 : Prepared statement created..!");

    // Prepared SQL query as a string

    String sInsertQry = "INSERT INTO FirstTable  VALUES (?)";

    // Call method prepared statement

    PreparedStatement myPS = myConnection.prepareStatement(sInsertQry);

%>

<br>

<%
```

```jsp
// Step 4: Perform insertion of record

out.println("Step 4 : Perform insertion of record ..!");

String name = "Welcome to access MySQL database with JSP...!";

myPS.setString(1, name);



result = myPS.executeUpdate();



if (result > 0) {
%>

<br>

<%

out.println("Step 5 : Close Database connection..!");



out.println(" ");

out.println("Database connection is closed..!");


out.print("<p><font color=\"blue\">" + "The record : (" + name + ") is successfully
created..!" + "</font></p>");         }

//Step 5: Close database connection...!

myConnection.close();

%>

</body>
</html>
```
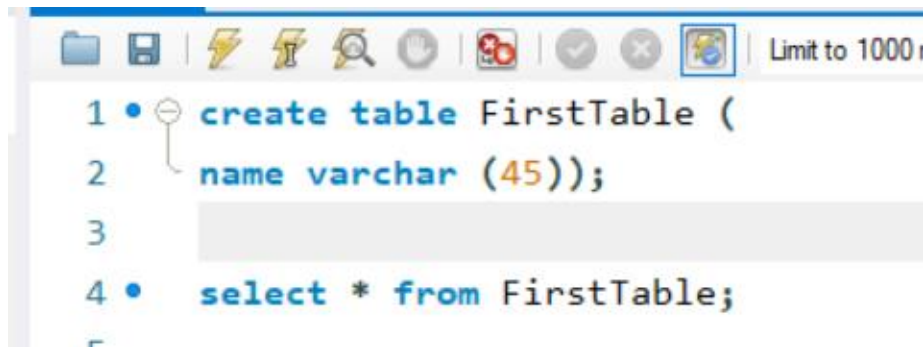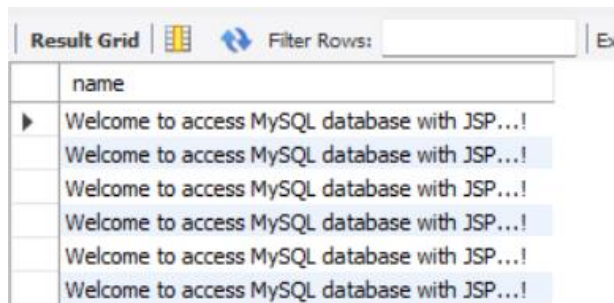
```
1 • ⊝   create table FirstTable (
2          name varchar (45));
3
4 •       select * from FirstTable;
```


Result Grid | Filter Rows: | Ex

name
▶ Welcome to access MySQL database with JSP...!
Welcome to access MySQL database with JSP...!
Welcome to access MySQL database with JSP...!
Welcome to access MySQL database with JSP...!
Welcome to access MySQL database with JSP...!
Welcome to access MySQL database with JSP...!

OUTPUTι :

http://localhost:8080/Lab6/SampleInsertionRecord.jsp
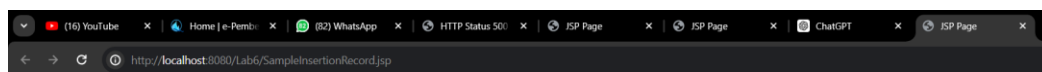
Lab 6 - Task 1 - Sample Insertion records into MYSQL through JSP's page

Step 1 : MySQL driver loaded..!
Step 2 : Database is connected...!
Step 3 : Prepared statement created..!
Step 4 : Perform insertion of record ..!
Step 5 : Close Database connection..! Database connection is closed..!

The record : (Welcome to access MySQL database with JSP...!) is successfully created..!

TASK 2: CREATE RECORD VIA JSP PAGE

insertAuthor.jsp

```
<%--

    Document   : insertAuthor

    Created on : 15 Jun 2024, 7:17:03 pm

    Author     : Nur Ezreena

--%>



<%@ page language="java" contentType="text/html; charset=UTF-8"

pageEncoding="UTF-8"%>

<!DOCTYPE html>

<html>

    <head>

        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

        <title>Lab 6 - Task 2</title>

    </head>

    <body>

        <h2>Task 2 - Perform creating and retrieving records via JSP page</h2>

        <form action="processAuthor.jsp" method="POST">

            <fieldset>

            <legend>Author Registration</legend>

                <table>

                <tr>

                <td>Author No:</td>
```

```html
<td><input type="text" name="authno" required></td>

</tr>

<tr>

<td>Name:</td>

<td><input type="text" name="name" required></td>

</tr>

<tr>

<td>Address:</td>

<td><input type="text" name="address" required></td>

</tr>

<tr>

<td>City:</td>

<td><input type="text" name="city" required></td>

</tr>

<tr>

<td>State:</td>

<td><input type="text" name="state" required></td>

</tr>

<tr>

<td>Zip:</td>

<td><input type="text" name="zip" required></td>

</tr>

</table>
```

```
        <br>

        <input type="submit" value="Submit">

        <input type="reset" value="Cancel">

        </form>

    </body>

        </fieldset>



        <br><br>



</html>
```

processAuthor.jsp

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

<%@ page language="java"%>

<%@ page import="java.sql.*" %>

<jsp:useBean id="myAuthor" class="lab6.com.Author" scope="request"/>

<!DOCTYPE html>

<html>

<head>

    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

    <title>Process Author</title>

</head>

<body>

    <h1>Task 2 - Perform creating and retrieving records via JSP page</h1>
```

```jsp
<jsp:setProperty name="myAuthor" property="*"/>

<%
    try {

        // Load the JDBC driver
        Class.forName("com.mysql.cj.jdbc.Driver");

        // Establish connection
        String myURL = "jdbc:mysql://localhost:3306/lab6_csm3023";
        Connection myConnection = DriverManager.getConnection(myURL, "root", "admin");

        // Prepare SQL insert statement
        String sInsertQry = "INSERT INTO author(authno, name, address, city, state, zip) VALUES(?, ?, ?, ?, ?, ?)";
        PreparedStatement myPS = myConnection.prepareStatement(sInsertQry);
        myPS.setString(1, myAuthor.getAuthno());
        myPS.setString(2, myAuthor.getName());
        myPS.setString(3, myAuthor.getAddress());
        myPS.setString(4, myAuthor.getCity());
        myPS.setString(5, myAuthor.getState());
        myPS.setString(6, myAuthor.getZip());
```

```java
    // Execute update

    int result = myPS.executeUpdate();


    // Check result and print corresponding messages

    if (result > 0) {

        out.println("<p style='color:blue;'>Record successfully added into Author
table...!</p>");

        out.print("<p style='color:blue;'>Record with author no " +
myAuthor.getAuthno() + " successfully created..!</p>");

        out.print("<p style='color:blue;'>Details of record are:</p>");

        out.print("<p style='color:blue;'>Name: " + myAuthor.getName() +
"</p>");

        out.print("<p style='color:blue;'>Address: " + myAuthor.getAddress() +
"</p>");

        out.print("<p style='color:blue;'>City: " + myAuthor.getCity() + "</p>");

        out.print("<p style='color:blue;'>State: " + myAuthor.getState() + "</p>");

        out.print("<p style='color:blue;'>Zip: " + myAuthor.getZip() + "</p>");

    } else {

        out.println("<p style='color:red;'>Failed to add record into Author
table.</p>");

    }


    // Close database connection

    myConnection.close();
```

```
        } catch (ClassNotFoundException e) {

            out.println("<p style='color:red;'>JDBC Driver not found: " + e.getMessage()
+ "</p>");

        } catch (SQLException e) {

            out.println("<p style='color:red;'>SQL Error: " + e.getMessage() + "</p>");

        } catch (Exception e) {

            out.println("<p style='color:red;'>Error: " + e.getMessage() + "</p>");

        }

    %>



</body>

</html>
```

Author.java

```
/*

 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to
change this license

 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this
template

 */

package lab6.com;



/**

 *

 * @nur ezreena

 */
```

```java
public class Author {


    private String authno;

    private String name;

    private String address;

    private String city;

    private String state;

    private String zip;


    /**
     * @return the authno
     */
    public String getAuthno() {

        return authno;

    }


    /**
     * @param authno the authno to set
     */
    public void setAuthno(String authno) {

        this.authno = authno;

    }
```

```java
/**
 * @return the name
 */
public String getName() {

    return name;

}


/**
 * @param name the name to set
 */
public void setName(String name) {

    this.name = name;

}


/**
 * @return the address
 */
public String getAddress() {

    return address;

}


/**
 * @param address the address to set
```

```java
	 */

	public void setAddress(String address) {

		this.address = address;

	}


	/**

	 * @return the city

	 */

	public String getCity() {

		return city;

	}


	/**

	 * @param city the city to set

	 */

	public void setCity(String city) {

		this.city = city;

	}


	/**

	 * @return the state

	 */

	public String getState() {
```
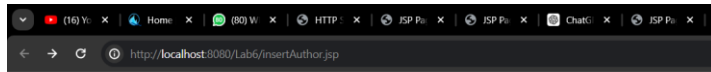
```java
        return state;

    }


    /**
     * @param state the state to set
     */
    public void setState(String state) {

        this.state = state;

    }


    /**
     * @return the zip
     */
    public String getZip() {

        return zip;

    }


    /**
     * @param zip the zip to set
     */
    public void setZip(String zip) {

        this.zip = zip;

    }
```
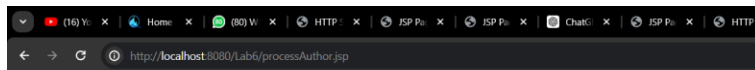
```
}
```

OUTPUT:

Task 2 - Perform creating and retrieving records via JSP page

Author Registration
Author No: s66467
Name: NUR EZREENA SHUHADA
Address: NO 48 JALAN WIRA JAYA
City: Ipoh
State: PERAK
Zip: 31350

Submit Cancel

Task 2 - Perform creating and retrieving records via JSP page

Record successfully added into Author table...!

Record with author no s66467 successfully created..!

Details of record are:

Name: NUR EZREENA SHUHADA BT EMRAN

Address: NO 48 JALAN WIRA JAYA

City: Ipoh

State: PERAK

Zip: 31350

```sql
6  ● ⊖  create table Author(
7        authno varchar (15) primary key,
8        name varchar (40),
9        address varchar (40),
10       city varchar(40),
11       state varchar (40),
12       zip varchar (40) )
13
14       select * from author;
```

	authno	name	address	city	state	zip
▶	s66467	NUR EZREENA SHUHADA BT EMRAN	NO 48 JALAN WIRA JAYA	Ipoh	PERAK	31350
*	NULL	NULL	NULL	NULL	NULL	NULL

TASK 3 : CREATE RECORD CONSTRAINED BY REGULAR EXPRESSION IN JSP

insertStudent.jsp

```
<%--

    Document  : insertStudent

    Created on : 15 Jun 2024, 8:04:04 pm

    Author    : Nur Ezreena

--%>



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

<!DOCTYPE html>

<html>

 <head>

   <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

   <title>Student Registration</title>

 </head>

 <body>

   <fieldset>

     <legend>Student Registration</legend>

     <form action="processStudent.jsp" method="POST">

       <table>

         <tr>

           <td><label for="stuno">Student No</label></td>
```

```html
        <td><input type="text" id="stuno" name="stuno"
placeholder="E.g.:UKXXXXXX" required></td>

    </tr>

    <tr>

      <td><label for="name">Name</label></td>

      <td><input type="text" id="name" name="name" placeholder="Enter your
name" required></td>

    </tr>

    <tr>

      <td><label for="program">Program</label></td>

      <td>

        <select id="program" name="program" required>

          <option value="BSc. Soft. Eng.">BSc. Soft. Eng.</option>

          <option value="BSc. with IM">BSc. with IM</option>

          <option value="BSc. in Networking">BSc. in Networking</option>

          <option value="BSc. in Robotics">BSc. in Robotics</option>

        </select>

      </td>

    </tr>

    <tr>

      <td colspan="2">

        <br>

        <button type="submit" value="Submit">Submit</button>
```

```html
          <button type="reset" value="Reset">Cancel</button>

        </td>

      </tr>

    </table>

  </form>

 </fieldset>

 <br>

</body>

</html>
```

processStudent.jsp

```jsp
<%--

   Document   : processStudent

   Created on : 15 Jun 2024, 8:06:07 pm

   Author    : Nur Ezreena

--%>



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

<%@page language="java"%>

<%@page import="java.sql.*"%>

<%@page errorPage="errorStudent.jsp"%>

<!DOCTYPE html>

<html>
```

```html
<head>

<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

<title>Process Student</title>

</head>

<body>

  <jsp:useBean id="myStudent" class="lab6.com.Student" scope="request"/>

  <jsp:setProperty name="myStudent" property="*"/>


  <%

    int result;

    try {

      // Step 1: Load JDBC driver

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

      System.out.println("Step 1: MySQL driver loaded…!");


      // Step 2: Establish the connection

      String myURL = "jdbc:mysql://localhost:3306/lab6_csm3023";

      Connection myConnection = DriverManager.getConnection(myURL, "root",
"admin");

      System.out.println("Step 2: Database is connected…!");


      // Step 3: Create a PreparedStatement object
```

```java
    String sInsertQry = "INSERT INTO student(stuno, stuname, stuprogram)
VALUES(?, ?, ?)";

    PreparedStatement myPS = myConnection.prepareStatement(sInsertQry);



    // Assign each value to respective columns for Student's table (C-Create)

    String studentNo = myStudent.getStuno();

    if (studentNo.length() > 10) {

        throw new Exception("Student number exceeds maximum length of 10
characters.");

    }



    myPS.setString(1, studentNo);

    myPS.setString(2, myStudent.getName());

    myPS.setString(3, myStudent.getProgram());



    result = myPS.executeUpdate();

    if (result > 0) {

        out.println("\tRecord successfully added into Student table...!");

        out.print("<p style='color:blue;'>" + "Record with student no " +
myStudent.getStuno() + " successfully created..!" + "</p>");

        out.print("<p style='color:blue;'>" + "Details of record are; " + "</p>");

        out.print("<p style='color:blue;'>Student ID : " + myStudent.getStuno() +
"</p>");

        out.print("<p style='color:blue;'>Name : " + myStudent.getName() + "</p>");
```

```
        out.print("<p style='color:blue;'>Program : " + myStudent.getProgram() +
"</p>");

    }


    // Step 5: Close database connection

    myConnection.close();

    System.out.println("Database connection is closed..!");

  } catch (Exception e) {

    e.printStackTrace();

    out.print("<p style='color:red;'>Error: " + e.getMessage() + "</p>");

  }

 %>

</body>

</html>
```

Student.java

```
package lab6.com;

import java.util.regex.Matcher;

import java.util.regex.Pattern;

public class Student {

  private String stuno;

  private String name;

  private String program;
```

```java
public String getStuno() {

    Pattern pt = Pattern.compile("[A-Z0-9]*");

    Matcher mt = pt.matcher(stuno);

    boolean bl = mt.matches();

    String valid = "";

    String invalid = "Invalid input, please re-enter!";

    if(bl) {

        valid = stuno;

    } else {

        valid = invalid;

    }

    return valid;

}


public void setStuno(String stuno) {

    this.stuno = stuno;

}


public String getName() {

    return name;

}
```

```java
    public void setName(String name) {

        this.name = name;

    }


    public String getProgram() {

        return program;

    }


    public void setProgram(String program) {

        this.program = program;

    }

}
```

errorStudent.jsp

```jsp
<%--

    Document   : errorStudent

    Created on : 15 Jun 2024, 8:34:06 pm

    Author     : Nur Ezreena

--%>



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

<!DOCTYPE html>

<html>
```

```html
<head>

<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

  <title>errorStudent</title>

</head>

<body>

  <form id="errorFrm" action="insertStudent.jsp" method="post">

    <p>Error occur when inserting record...!</p>

    <p>Error Message: ${exception.getMessage()}</p>

    <br>

  </form>

</body>

</html>
```
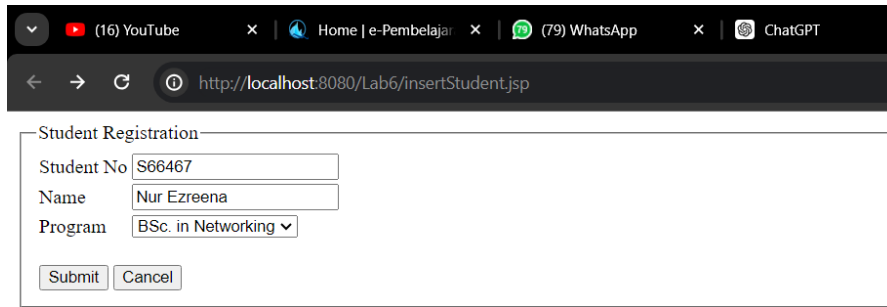
```sql
15
16  ⊖  create table student(
17       stuno varchar (20) primary key,
18       stuname varchar (50),
19       stuprogram varchar (40)
20       )
21
22       select * from student;
23
```

Result Grid | Filter Rows: | Edit:

stuno	stuname	stuprogram
S66467	Nur Ezreena	BSc. in Networking
NULL	NULL	NULL

OUTPUT:
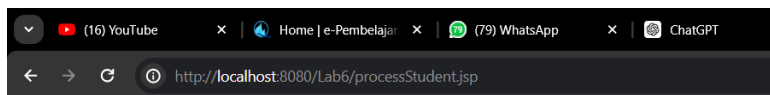
Record successfully added into Student table...!

Record with student no S66467 successfully created..!

Details of record are;

Student ID : S66467

Name : Nur Ezreena

Program : BSc. in Networking

TASK 4 : PERFORM RETRIEVING RECORDS VIA JSP PAGE

queryStudent.jsp

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

<%@page import="java.sql.*"%>

<!DOCTYPE html>

<html>

  <head>

  <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

    <title>Lab 6 - Task 4 : Retrieving record vis JSP page </title>

  <style>

    table{

    border-collapse: collapse;

    }

    td, th{

    border: 1px solid #999;

    padding: 0.5rem;

    text-align: left;

    }

    th{

    background: gold;

    }

  </style>

  </head>
```

```jsp
<body>

  <h1>Task 4: Retrieving record via JSP page</h1>


    <%

    out.print("<table>");

    out.print("<thead>");

    out.print("<tr>");

    out.print("<th>" + "ISBNNo" + "</th>");

    out.print("<th>" + "Author" + "</th>");

    out.print("<th>" + "Title" + "</th>");

    out.print("</tr>");

    out.print("</thead>");

    out.print("<tbody>");

    %>

    <%

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

    System.out.println("Step 1: MySQL driver loaded...!");


    String myURL = "jdbc:mysql://localhost:3306/lab6_csm3023";

    Connection myConnection = DriverManager.getConnection(myURL, "root",
"admin");

    System.out.println("Step 2: Database is connected...!");
```

```
        Statement myStatement = myConnection.createStatement();


        String myQuery = "SELECT * FROM student";

        ResultSet myResultSet = myStatement.executeQuery(myQuery);


        while(myResultSet.next()){

        out.print("<tr>");

        out.print("<td width=\"20%\">" + myResultSet.getString(1) + "</td>");

        out.print("<td width=\"40%\">" + myResultSet.getString(2) + "</td>");

        out.print("<td width=\"40%\">" + myResultSet.getString(3) + "</td>");

        out.print("</tr>");

        }

        System.out.println("Step 5: Close database connection..!");

        myConnection.close();

        System.out.println(" ");

        System.out.println("Database connection is closed..!");


        out.print("</tbody>");

        out.print("</table>");

        %>

 </body>

</html>
```
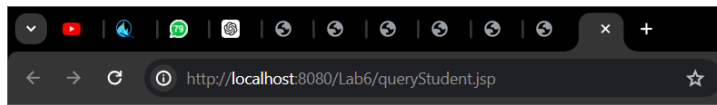
OUTPUT:

Task 4: Retrieving record via JSP page

ISBNNo	Author	Title
S66467	Nur Ezreena	BSc. in Networking
UK12489	Ahmad Salam	BSc. with IM
UK56789	Rosnah Azman	BSc. Soft. Eng.
UK67342	Liew Cheng Huat	BSc. in Robotics

TASK 5 : CREATE RECORD USING JSP MODEL 1

registerMarathon.jsp

```
<%--

    Document   : registerMarathon

    Created on : 15 Jun 2024, 9:04:17 pm

    Author     : Nur Ezreena

--%>



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

<!DOCTYPE html>

<html lang="en">

<head>

  <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

  <meta name="viewport" content="width=device-width, initial-scale=1.0">
```

```html
<title>Marathon Registration</title>

<style>

  body {

    font-family: Arial, sans-serif;

    line-height: 1.6;

    margin: 0;

    padding: 0;

    display: flex;

    flex-direction: column;

    min-height: 100vh;

  }

  h1 {

    text-align: center;

    margin-top: 20px;

  }

  fieldset {

    margin: 20px auto;

    padding: 20px;

    border: 2px solid #ccc;

    max-width: 400px;

  }

  table {
```

```css
    width: 100%;

}

td {

    padding: 10px;

}

label {

    display: block;

    margin-bottom: 5px;

}

input[type="text"], select {

    width: 100%;

    padding: 8px;

    box-sizing: border-box;

}

button {

    padding: 10px 15px;

    background-color: #007BFF;

    color: white;

    border: none;

    cursor: pointer;

}

button[type="reset"] {
```

```css
      background-color: #DC3545;

    }

    button:hover {

      opacity: 0.9;

    }

    footer {

      text-align: center;

      margin-top: auto;

      padding: 10px;

      background: #f1f1f1;

    }

  </style>

</head>
```

```html
<body>

  <h1>Marathon Registration</h1>

  <fieldset>

    <legend>Marathon Registration</legend>

    <form action="processMarathon.jsp" method="post">

      <table>

        <tr>

          <td>

            <label for="icno">IC No</label>
```

```html
        </td>

        <td>

          <input type="text" id="icno" name="icno" placeholder="E.g.: 921110-10-2514" required>

        </td>

      </tr>

      <tr>

        <td>

          <label for="name">Name</label>

        </td>

        <td>

          <input type="text" id="name" name="name" placeholder="Enter your name" required>

        </td>

      </tr>

      <tr>

        <td>

          <label for="category">Category</label>

        </td>

        <td>

          <select id="category" name="category" required>

            <option value="5 KM">5 KM</option>

            <option value="7 KM">7 KM</option>
```

```
          <option value="10 KM">10 KM</option>

        </select>

      </td>

    </tr>

    <tr>

      <td colspan="2" style="text-align: center;">

        <br>

        <button type="submit" value="Submit">Submit</button>

        <button type="reset" value="Reset">Cancel</button>

      </td>

    </tr>

  </table>

  </form>

  </fieldset>


</body>

</html>
```

processMarathon.jsp

```
<%--

  Document  : processMarathon

  Created on : 15 Jun 2024, 9:06:22 pm

  Author    : Nur Ezreena
```

```jsp
--%>

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

<%@ page language="java" %>

<%@ page import="java.sql.*" %>

<%@ page import="lab6.com.Database" %>

<%@ page import="lab6.com.Marathon" %>

<%@ page import="lab6.com.MarathonDAO" %>

<!DOCTYPE html>

<html>

<head>

  <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

  <title>Marathon Registration Result</title>

  <style>

    body {

      font-family: Arial, sans-serif;

      line-height: 1.6;

      margin: 0;

      padding: 20px;

    }

    p {

      margin: 10px 0;

    }
```

```jsp
      footer {

        text-align: center;

        margin-top: 20px;

        padding: 10px;

        background: #f1f1f1;

      }

    </style>

</head>

<body>

  <h1>Marathon Registration Result</h1>


  <jsp:useBean id="myMarathon" class="lab6.com.Marathon" scope="request"/>

  <jsp:setProperty name="myMarathon" property="*"/>


  <%

    int result;

    Database myDB = new Database();

    MarathonDAO marathonDAO = new MarathonDAO();


    try {

      // Add the records

      result = marathonDAO.addDetails(myMarathon);
```

```
    // Check if the transaction is successful

    if (result > 0) {

        out.print("<p style='color:green;'>Record with IC No " + myMarathon.getIcno()
+ " successfully created!</p>");

        out.print("<p>Details of the record are:</p>");

        out.print("<p>IC No: " + myMarathon.getIcno() + "</p>");

        out.print("<p>Name: " + myMarathon.getName() + "</p>");

        out.print("<p>Category: " + myMarathon.getCategory() + "</p>");

    } else {

        out.print("<p style='color:red;'>There was an error! Maybe you have already
registered before?</p>");

    }

} catch (Exception e) {

    e.printStackTrace();

    out.print("<p style='color:red;'>An error occurred while processing your
registration. Please try again later.</p>");

} finally {

    // Close the database connection

    myDB.closeConnection();

}

%>

</body>

</html>
```

Marathon.java

```java
/*

 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license

 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template

 */

package lab6.com;


/**

 *

 * @nur ezreena

 */



public class Marathon {

    private String icno;

    private String name;

    private String category;


    public String getIcno() {

        return icno;

    }
```

```java
    public void setIcno(String icno) {

        this.icno = icno;

    }


    public String getName() {

        return name;

    }


    public void setName(String name) {

        this.name = name;

    }


    public String getCategory() {

        return category;

    }


    public void setCategory(String category) {

        this.category = category;

    }

}
```

Database.java

```java
/*
```

```java
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to
change this license

 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this
template

 */

package lab6.com;


import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.SQLException;


public class Database {


    private static Connection myConnection = null;

    private static final String myURL = "jdbc:mysql://localhost:3306/lab6_csm3023";


    public static Connection getConnection() throws ClassNotFoundException,
SQLException {

        if (myConnection != null && !myConnection.isClosed()) {

            return myConnection;

        } else {

            try {

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

                myConnection = DriverManager.getConnection(myURL, "root", "admin");
```

```java
        } catch (ClassNotFoundException | SQLException e) {

            e.printStackTrace();

            throw e; // Rethrow the exception to handle it at a higher level if needed

        }

        return myConnection;

    }

}


    public void closeConnection() {

        try {

            if (myConnection != null && !myConnection.isClosed()) {

                myConnection.close();

            }

        } catch (SQLException e) {

            e.printStackTrace();

        }

    }

}
```

MarathonDAO.java

```
/*

 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to
change this license
```

```java
 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
 */
package lab6.com;


import java.sql.Connection;

import java.sql.PreparedStatement;

import java.sql.SQLException;


public class MarathonDAO {


    private Connection connection;

    private int result = 0;


    public MarathonDAO() throws ClassNotFoundException, SQLException {

        connection = Database.getConnection();

    }


    public int addDetails(Marathon marathon) {

        PreparedStatement preparedStatement = null;

        try {

            String mySQL = "INSERT INTO marathon(icno, name, category) VALUES (?, ?, ?)";

            preparedStatement = connection.prepareStatement(mySQL);
```

```java
        // Set parameters for the PreparedStatement

        preparedStatement.setString(1, marathon.getIcno());

        preparedStatement.setString(2, marathon.getName());

        preparedStatement.setString(3, marathon.getCategory());



        // Execute the query

        result = preparedStatement.executeUpdate();

    } catch (SQLException e) {

        e.printStackTrace();

    } finally {

        // Close PreparedStatement in finally block to ensure it always gets closed

        if (preparedStatement != null) {

            try {

                preparedStatement.close();

            } catch (SQLException e) {

                e.printStackTrace();

            }

        }

    }

    return result;

}
```

```
// Ensure to close the connection when the DAO is no longer needed

public void closeConnection() {

    if (connection != null) {

        try {

            connection.close();

        } catch (SQLException e) {

            e.printStackTrace();

        }

    }

}
}
```
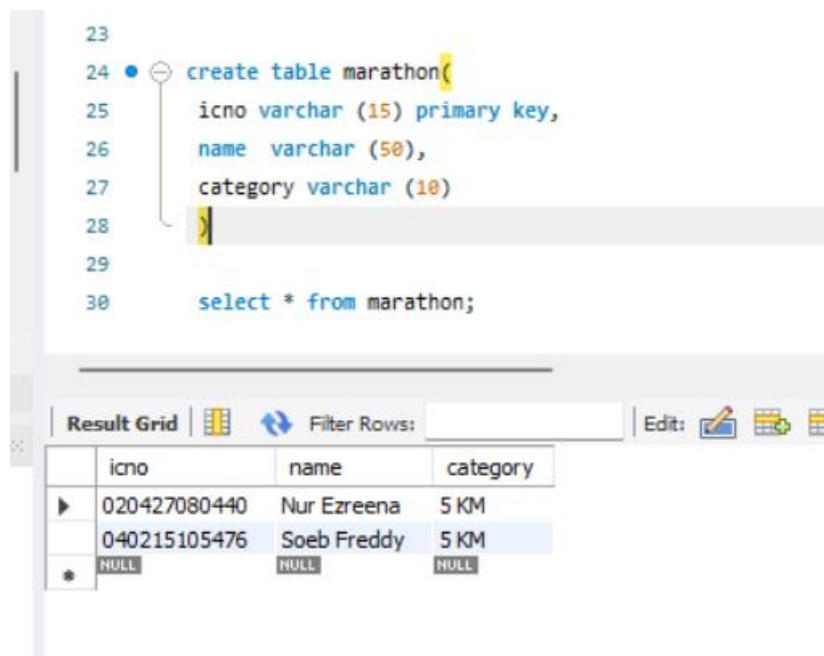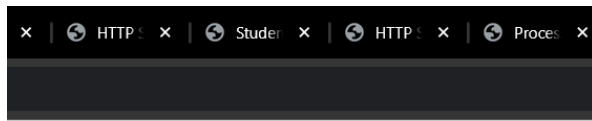
```
23
24 ●⊖  create table marathon(
25        icno varchar (15) primary key,
26        name  varchar (50),
27        category varchar (10)
28      ⌐ )
29
30        select * from marathon;
```

Result Grid | Filter Rows: | Edit:

icno	name	category
020427080440	Nur Ezreena	5 KM
040215105476	Soeb Freddy	5 KM
NULL	NULL	NULL

OUTPUT:

Marathon Registration

Marathon Registration

IC No   040215105476

Name   Soeb Freddy

Category   5 KM

Submit   Cancel

http://localhost:8080/Lab6/processMarathon.jsp
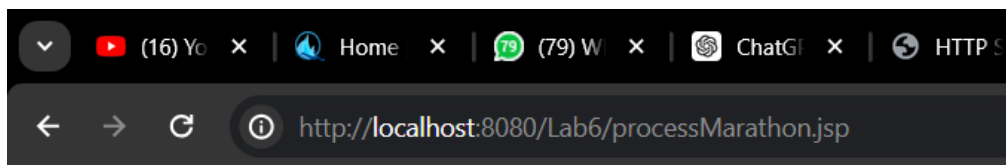
Marathon Registration Result

Record with IC No 040215105476 successfully created!

Details of the record are:

IC No: 040215105476

Name: Soeb Freddy

Category: 5 KM

EXERCISE

insertUser.html

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <meta name="viewport" content="width=device-width, initial-scale=1.0">

  <title>User Registration</title>

</head>

<body>

  <h1>User Registration</h1>

  <fieldset>

    <legend>User Registration</legend>

    <form action="processUser.jsp" method="post">

      <table>

        <tr>

          <td><label for="username">Username</label></td>

          <td><input type="text" id="username" name="username"
placeholder="Enter a username" required></td>

        </tr>

        <tr>

          <td><label for="password">Password</label></td>

          <td><input type="password" id="password" name="password"
placeholder="Enter a password" required></td>
```

```html
        </tr>

        <tr>

          <td><label for="firstname">Firstname</label></td>

          <td><input type="text" id="firstname" name="firstname" placeholder="E.g.:
Jamal" required></td>

        </tr>

        <tr>

          <td><label for="lastname">Lastname</label></td>

          <td><input type="text" id="lastname" name="lastname" placeholder="E.g.:
bin Abdullah" required></td>

        </tr>

        <tr>

          <td><br></td>

          <td>

            <button type="submit">Submit</button>

            <button type="reset">Cancel</button>

          </td>

        </tr>

      </table>

    </form>

  </fieldset>

</body>

</html>
```

processUser.jsp

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

<%@page language="java"%>

<%@page import="java.sql.*"%>

<%@page errorPage="login.jsp"%>

<!DOCTYPE html>

<html>

  <head>

    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

    <title>Exercise</title>

  </head>

  <body>

    <jsp:useBean id="myUser" class="lab6.com.User" scope="request"/>

    <jsp:setProperty name="myUser" property="*"/>


    <%

      int result;


      //Step 1: Load JDBC driver..

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

      System.out.println("Step 1: MySQL driver loaded...!");


      //Step 2: Establish the connection
```

```java
        String myURL = "jdbc:mysql://localhost:3306/lab6_csm3023";

        Connection myConnection = DriverManager.getConnection(myURL, "root",
"admin");

        System.out.println("Step 2: Database is connected...!");



        //Step 3: Create a PreparedStatement object...

        System.out.println("Step3: Prepared Statements created...!");

        String sInsertQry = "INSERT INTO userprofile (username, password, firstname,
lastname) VALUES(?, ?, ?, ?)";

        System.out.println("\tSQL Query: " + sInsertQry);



        //Call method preparedStatement

        PreparedStatement myPS = myConnection.prepareStatement(sInsertQry);



        //Assign each value to respective columns for Student's table.. (C-Create)

        myPS.setString(1, myUser.getUsername());

        myPS.setString(2, myUser.getPassword());

        myPS.setString(3, myUser.getFirstname());

        myPS.setString(4, myUser.getLastname());



        result = myPS.executeUpdate();

        if (result > 0){

            out.println("\tRecord successfully added into User table...!");
```

```java
        out.print("<p>" + "Record with Username " +myUser.getUsername()

            + " successfully created..!" + "</p>");

        out.print("<p>" + "Details of record are; " + "</p>");

        out.print("<p>Username : " + myUser.getUsername() + "</p>");

        out.print("<p>Firstname : " + myUser.getFirstname() + "</p>");

        out.print("<p>Lastname : " + myUser.getLastname() + "</p>");

    }

    //Step5: close database connection..!

        System.out.println("Step 5: Close database connection..!");

        myConnection.close();

        System.out.println(" ");

        System.out.println("Database connection is closed..!");

    %>

  </body>

</html>
```

Login.jsp

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

<!DOCTYPE html>

<html>

<head>

  <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

  <title>Exercise - User Login</title>
```

```html
</head>

<body>

  <h1>Login</h1>

  <fieldset>

    <legend>User Login</legend>

    <form action="doLogin.jsp" method="post">

      <table>

        <tr>

          <td><label for="username">Username</label></td>

          <td><input type="text" id="username" name="username" placeholder="Enter a username"></td>

        </tr>

        <tr>

          <td><label for="password">Password</label></td>

          <td><input type="password" id="password" name="password" placeholder="Enter a password"></td>

        </tr>

        <tr>

          <td><button type="submit">Submit</button></td>

          <td><button type="reset">Cancel</button></td>

        </tr>

      </table>

    </form>
```

```
      </fieldset>


      <%

      String errorMessage = request.getParameter("error");

      if (errorMessage != null && !errorMessage.isEmpty()) {

      %>

      <p style="color: red"><%= errorMessage %></p>

      <%

      }

      %>

  </body>

</html>
```

doLogin.jsp

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

<%@ page import="java.sql.*, lab6.com.User" %>

<%@ page import="java.io.*, java.util.*" %>

<!DOCTYPE html>

<html>

  <head>

    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

    <title>Exercise</title>

  </head>
```

```jsp
<body>

  <h1>Login</h1>

  <%

    // Retrieve username and password from the request

    String username = request.getParameter("username");

    String password = request.getParameter("password");



    // Check if username and password are not null and not empty

    if (username != null && !username.isEmpty() && password != null &&
!password.isEmpty()) {

      // Establish database connection

      Connection conn = null;

      PreparedStatement pstmt = null;

      ResultSet rs = null;

      try {

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

        String myURL = "jdbc:mysql://localhost:3306/lab6_csm3023";

        conn = DriverManager.getConnection(myURL, "root", "admin");



        // Query to check if the username and password are valid

        String query = "SELECT * FROM userprofile WHERE username = ? AND
password = ?";

        pstmt = conn.prepareStatement(query);
```

```java
        pstmt.setString(1, username);

        pstmt.setString(2, password);

        rs = pstmt.executeQuery();


    if (rs.next()) {

        // If user exists and credentials are valid, redirect to main.jsp

        User user = new User();

        user.setUsername(rs.getString("username"));

        user.setFirstname(rs.getString("firstname"));

        user.setLastname(rs.getString("lastname"));


        // Set user object in session for later use

        session.setAttribute("user", user);

        response.sendRedirect("main.jsp");

    } else {

        // If invalid username or password, redirect back to login.jsp with error
message

response.sendRedirect("login.jsp?error=Invalid+username+or+password");

    }

    } catch (Exception e) {

        e.printStackTrace();

    } finally {
```

```
        // Close resources

        if (rs != null) rs.close();

        if (pstmt != null) pstmt.close();

        if (conn != null) conn.close();

      }

    } else {

      // If username or password is empty, redirect back to login.jsp with error
message

response.sendRedirect("login.jsp?error=Username+and+password+are+required");

    }

  %>

  </body>

</html>
```

Main.jsp

```
<%--

  Document   : main

  Created on : 15 Jun 2024, 9:37:00?pm

  Author    : Nur Ezreena

--%>


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

<%@page language="java"%>
```

```jsp
<%@ page import="lab6.com.User" %>

<%@ page import="java.io.*, java.util.*" %>

<!DOCTYPE html>

<html>

  <head>

    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

    <title>Exercise</title>

  </head>

  <body>

    <%

      // Retrieve user object from session

      lab6.com.User user = (lab6.com.User) session.getAttribute("user");


      // Check if user object exists in session

      if (user != null) {

    %>

    <h1>Welcome, <%= user.getFirstname() %> <%= user.getLastname() %></h1>

    <p>Your username is: <%= user.getUsername() %></p>



    <p><a href="logout.jsp">Logout</a></p>

    <%
```

```
        } else {

            // If user object does not exist in session, redirect to login page

            response.sendRedirect("login.jsp");

        }

    %>

  </body>

</html>
```

User.java

```java
package lab6.com;



/**

 *

 * @author User

 */

public class User {



  private String username;

  private String password;

  private String firstname;

  private String lastname;



  public String getUsername() {
```

```java
        return username;

    }


    public void setUsername(String username) {

        this.username = username;

    }



    public String getPassword() {

        return password;

    }



    public void setPassword(String password) {

        this.password = password;

    }



    public String getFirstname() {

        return firstname;

    }



    public void setFirstname(String firstname) {

        this.firstname = firstname;

    }
```
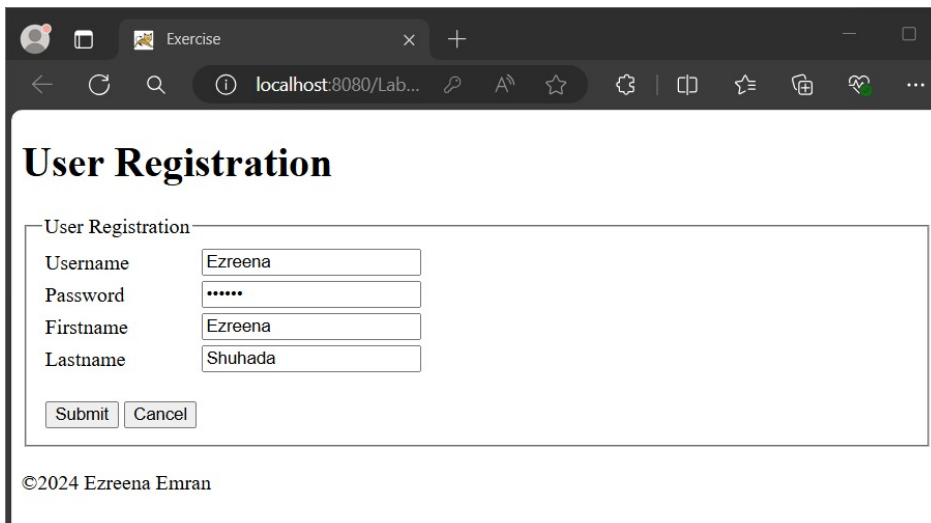
```java
    public String getLastname() {

        return lastname;

    }



    public void setLastname(String lastname) {

        this.lastname = lastname;

    }

}
```

Output:

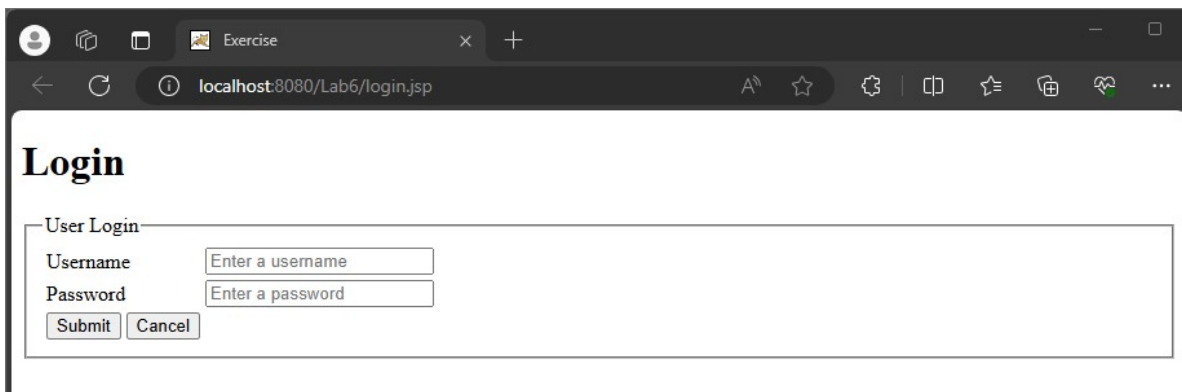# Login

User Login

Username	Ezreena
Password	••••••

Submit Cancel

Record successfully added into User table...!

Record with Username Ezreena successfully created..!

Details of record are;

Username : Ezreena

Firstname : Ezreena

Lastname : Shuhada

Welcome, Ezreena Shuhada

Your username is: Ezreena

Logout

	username	password	firstname	lastname
▶	Ezreena	Ezz123	Ezreena	Shuhada
*	NULL	NULL	NULL	NULL