



UNIVERSITI MALAYSIA TERENGGANU

CSM3023 – WEB BASED APPLICATION DEVELOPMENT

BACHELOR OF COMPUTER SCIENCE (MOBILE COMPUTING) WITH HONORS

LAB 6

SEMESTER II 2023/2024

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TASK 1

```
<%@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 record into MySql through JSP's page</h1>

<%
    int result;

    Class.forName("com.mysql.jdbc.Driver");
    out.println("Step 1: MYSQL driver loaded...!");
%>
<br>
<%
    String myURL="jdbc:mysql://localhost/cs3107";
    Connection myConnection = DriverManager.getConnection(myURL, "root", "admin");
    out.println("Step 2: Database is connected...!");
%>
<br>
<%
    out.println("Step 3: Prepared statement created...!");

    String sInsertQry = "INSERT INTO firsttable VALUE(?)";

    PreparedStatement myPS = myConnection.prepareStatement(sInsertQry);
%>
<br>

<br>
<%
    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>"+"The record : (" + name +") is successfully created...!"+"</p>");
    myConnection.close();
    }
%>
</body>
</html>
```

Lab 6 - Task 1 - Sample Insertion record 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...!

```
3 • select * from firsttable
```

Result Grid			Filter Rows: <input type="text"/>	Export: 	Wra
	Name				
▶	Welcome to access MySQL database with JSP. .. !				

TASK 2

nsertAuthor.jsp

```
-      </head>
-      <body>
-          <h1>Lab 6 - Task 2 -Perform creating and retrieving records via JSP page</h1>
-
-          <form action="ProcessAuthor.jsp" method="post">
-              <fieldset>
-                  <legend>Author Registration</legend>
-                  <label>Author No: </label>
-                  <input type="text" name="authno" placeholder="Eg: UKXXXXX"><br><br>
-
-                  <label>Name: </label>
-                  <input type="text" name="name" placeholder="Enter Your name"><br><br>
-
-                  <label>Address: </label>
-                  <input type="text" name="address" placeholder="Enter your address"><br><br>
-
-                  <label>City: </label>
-                  <input type="text" name="city" placeholder="Enter your city"><br><br>
-
-                  <label>State: </label>
-                  <input type="text" name="state" placeholder="Enter your state"><br><br>
-
-                  <label>Zip </label>
-                  <input type="text" name="zip" placeholder="Enter your zip"><br><br>
-
-                  <input type="submit" name="Submit">
-                  <input type="reset" name="Cancel">
-
-              </fieldset>
-
-          </form>
```

Author.java

```
public class Author {  
    private String authno;  
    private String name;  
    private String address;  
    private String city;  
    private String state;  
    private String zip;  
  
    public String getAuthno() {  
        return authno;  
    }  
  
    public void setAuthno(String authno) {  
        this.authno = authno;  
    }  
  
    public String getName() {  
        return name;  
    }  
  
    public void setName(String name) {  
        this.name = name;  
    }  
  
    public String getAddress() {  
        return address;  
    }  
  
    public void setAddress(String address) {  
        this.address = address;  
    }  
  
    public String getCity() {  
        return city;  
    }  
  
    public String getState() {  
        return state;  
    }  
  
    public void setState(String state) {  
        this.state = state;  
    }  
  
    public String getZip() {  
        return zip;  
    }  
  
    public void setZip(String zip) {  
        this.zip = zip;  
    }  
}
```

ProcessAuthor.jsp

```
<body>
<h1>Lab 6 - Task 1 - Perform creating and retrieving records via JSP page</h1>
<jsp:useBean id="myAuthor" class="lab6.com.Author" scope="request"/>
<jsp:setProperty name="myAuthor" property="*" />
<%
    int result;

    Class.forName("com.mysql.jdbc.Driver");
    String myURL="jdbc:mysql://localhost:3306/csf3107";
    Connection myConnection = DriverManager.getConnection(myURL, "root", "admin");

    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());

    result = myPS.executeUpdate();

    if(result > 0){
        out.println("\tRecord successfully added into Author table...!");
        out.println("<p>" + "Record with author no "+myAuthor.getAuthno()+" succesfully creat");
        out.println("<p>"+ "Details of record are; "+"</p>");
        out.println("<p>Name: "+myAuthor.getName()+"</p>");
        out.println("<p>Address: "+myAuthor.getAddress()+"</p>");
        out.println("<p>City: "+myAuthor.getCity()+"</p>");
        out.println("<p>State: "+myAuthor.getState()+"</p>");
        out.println("<p>Zip: "+myAuthor.getZip()+"</p>");
        myConnection.close();
    }
%>
```

Lab 6 - Task 2 -Perform creating and retrieving records via JSP page

Author Registration

Author No:

Name:

Address:

City:

State:

Zip

Lab 6 - Task 1 - Perform creating and retrieving records via JSP page

Record successfully added into Author table...!

Record with author no 58 succesfully created...!

Details of record are;

Name: MAR

Address: NO. 14

City: KULIM

State: KEDAH

Zip: 09000

Reflection

1. What have you learnt from this exercise?

I know how to create and retrieve record from database using jsp

2. Define step by step before you successfully perform the transaction in a database.

Establish database connection using jdbc driver, provide URL, username and password of the database

Create SQL statement

Prepare SQL statement using PreparedStatement object and set parameter

Exceute SQL statement using execeuteUpdate()

Lastly, close the connection.

TASK 3

InsertStudent.jsp

```
<form action="processStudent.jsp" method="post">
<fieldset>
    <legend>Student Registration</legend>
    <label>Student ID: </label>
    <input type="text" name="stuno" >
    <label>Name: </label>
    <input type="text" name="name">
    <label>Program: </label>
    <select name="program">
        <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 Robotic">BSc. in Robotic</option>
    </select>
    <input type="submit" name="Submit">
    <input type="reset" name="Cancel">
</fieldset>
</form>
</body>
</html>
```

Student.java

```
public class Student {
    private String stuno;
    private String name;
    private String program;

    private static final Pattern STUNO_PATTERN = Pattern.compile("[A-Z0-9]*");

    public String getStuno() {
        return stuno;
    }

    public void setStuno(String stuno) {
        Matcher matcher = STUNO_PATTERN.matcher(stuno);
        if (matcher.matches()) {
            this.stuno = stuno;
        }
    }

    public String getName() {
        return name;
    }

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

    public String getProgram() {
        return program;
    }

    public void setProgram(String program) {
        this.program = program;
    }
}
```


ProcessStudent.jsp

```
<jsp:useBean id="myStudent" class="lab6.com.Student" scope="request"/>
<jsp:setProperty name="myStudent" property="*" />

<%
    int result;
    Class.forName("com.mysql.jdbc.Driver");
    System.out.println("Step 1 : MySQL driver load...!");

    String myURL = "jdbc:mysql://localhost/cs3107";
    Connection myConnection = DriverManager.getConnection(myURL, "root", "admin");
    System.out.println("Step 2: Database is connected");
    System.out.println("Step 3: Prepared Statements created");
    String sInsertQry = "INSERT INTO Student(stuno, stuname, stuprogram) VALUES(?, ?, ?)";
    PreparedStatement myPS = myConnection.prepareStatement(sInsertQry);

    System.out.println("Step 4: Perform insertion of record...!");
    myPS.setString(1, myStudent.getStuno());
    myPS.setString(2, myStudent.getName());
    myPS.setString(3, myStudent.getProgram());

    result = myPS.executeUpdate();
    if(result > 0){
        System.out.println("\tRecord successfully added into Book's table..!");
        out.println("<p>"+"Record with student no "+myStudent.getStuno() + " successfully created");
        out.println("<p>"+"Details of record are; "+"</p>");
        out.println("<p>Student ID: "+myStudent.getStuno()+"</p>");
        out.println("<p>Name: "+myStudent.getName()+"</p>");
        out.println("<p>Program: "+myStudent.getProgram()+"</p>");
    }

    System.out.println("Step 5: close database connection");
    myConnection.close();

    System.out.println("Database connection is closed..!");
%>
</body>
```

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>JSP Page</title>
    </head>
    <body>
        <form id="errorFrm.jsp" action="InsertStudent.jsp" method="post">
            <h1>Lab 9 - Task 1 -Perform creating and retrieving records via JSP page</h1>
            <p>when inserting record</p>

            <p><jsp:expression>exception.getMessage()</jsp:expression></p>

        </form>
    </body>
</html>
```

Student Registration

Student ID:

Name:

Program:

BSc Soft. Eng. ▾

Submit

Reset

Record with student no A222 successfully created..!

Details of record are;

Student ID: A222

Name: MAR

Program: BSc Soft. Eng.

Reflection

1. What have you learnt from this exercise?

I learned how to create record and insert record into database using jsp

2. Define step by step before you successfully perform the transaction in a database

Establish database connection using jdbc driver, provide URL, username and password of the database

Create SQL statement

Prepare SQL statement using PreparedStatement object and set parameter

Execute SQL statement using executeUpdate()

Lastly, close the connection.

TASK 4

```
<body>
<%
    out.print("<table>");
    out.print("<thead>");
    out.print("<th>"+ "ISBNNo" + "</th>");
    out.print("<th>"+ "Author" + "</th>");
    out.print("<th>"+ "Title" + "</th>");
    out.print("</thead>");
    out.print("<tbody>");
%>

<%
    Class.forName("com.mysql.jdbc.Driver");
    System.out.println("Step 1: MySQL driver loaded...!");

    String myURL = "jdbc:mysql://localhost/csf3107";
    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>");
    }

    myConnection.close();
%>
```

ISBNNo	Author	Title
UK12489	Ahmad Salam	BSc. with IM
UK56789	Rosnah Azman	BSc Soft. Eng.
UK67342	Liew Cheng Huat	BSc. in Robotic

Reflection

1. What have you learnt from this exercise?
I learned how to retrieve data from database using jsp
2. Explain the differences when using Statement() and PreparedStatement().
Statement() → used to execute static SQL queries without parameter

PreparedStatement → used to execute parameterized SQL queries

RegisterMarathon.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <title>JSP Page</title>
  </head>
  <body>
    <form action="processMarathon.jsp" method="post">
      <fieldset>
        <legend>Marathon Registration</legend>

        <label>Id No: </label>
        <input type="text" name="icno"><br><br>

        <label>Name</label>
        <input type="text" name="name" ><br><br>

        <label>Kategori</label>
        <select name="category">
          <option value="5 KM">5 KM</option>
          <option value="7 KM">7 KM</option>
          <option value="10 KM">10 KM</option>
        </select><br><br>

        <input type="submit" name="Submit">
        <input type="reset" name="Cancel">
      </fieldset>
    </form>
  </body>
</html>
```

Database

```
public class Database {
    private static Connection myConnection = null;
    private static String myURL = "jdbc:mysql://localhost:3306/csf3107";
    private int result = 0;

    public static Connection getConnection() throws ClassNotFoundException{
        if (myConnection != null){
            return myConnection;
        }
        else try {
            Class.forName("com.mysql.jdbc.Driver");
            myConnection = DriverManager.getConnection(myURL, "root", "admin");
        }
        catch (SQLException e){
            e.printStackTrace();
        }

        return myConnection;
    }

    public void closeConnection() throws ClassNotFoundException{
        try{
            myConnection.close();
        }
        catch(SQLException e){
            e.printStackTrace();
        }
    }
}
```

Marathon

```
public class Marathon {
    private String icno;
    private String name;
    private String category;

    public String getIcno() {
        return icno;
    }

    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;
    }
}
```

```
~/
public class MarathonDAO {
    private Connection connection;
    private int result = 0;

    public MarathonDAO() throws ClassNotFoundException{
        connection = Database.getConnection();
    }

    public int addDetails (Marathon marathon){
        try{
            String mySQL = "INSERT INTO marathon(icno, name, category) VALUES (?, ?, ?)";
            PreparedStatement preparedStatement = connection.prepareStatement(mySQL);

            System.out.println("IC No    = " + marathon.getIcno());
            System.out.println("Name     = " + marathon.getName());
            System.out.println("Category = " + marathon.getCategory());

            preparedStatement.setString(1, marathon.getIcno());
            preparedStatement.setString(2, marathon.getName());
            preparedStatement.setString(3, marathon.getCategory());
            result = preparedStatement.executeUpdate();
        }
        catch (SQLException e){
            e.printStackTrace();
        }
        return result;
    }
}
```

ProcessMarathon.jsp

```
<jsp:useBean id="myMarathon" class="lab6.com.Marathon" scope="request"/>
<jsp:setProperty name="myMarathon" property="*" />
<%
    int result;

    Database myDB = new Database();

    MarathonDAO object1 = new MarathonDAO();

    result = object1.addDetails(myMarathon);

    if(result > 0){
        System.out.println("\tRecord successfully added into Book's table...!");
        out.print("<p>" + "Record with IC No " + myMarathon.getIcno() + " successfully created..!");

        out.print("<p>" + "Details of 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>" );
        myDB.closeConnection();
    }
%>

</body>
</html>
```

Record with IC No 010328020155 successfully created..!

Details of record are;

Ic No : 010328020155

Name : MARLIANTI BT MUF PIARLIS

Category : 7 KM

Reflection

1. What have you learnt from this exercise?
I learned how to use javabeans to perform SQL
2. Describe the benefits of using JavaBeans.
We can reuse the component easily in different part of an application. If we not use javabeans, we need to write same code multiple time in different page.

EXERCISE

InsertUser.html

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>JSP Page</title>
</head>
<body>
<form action="processUser.jsp" method="post">
<fieldset>
<legend>User Profile</legend>
<label>Username: </label>
<input type="text" name="username"><br><br>

<label>Password: </label>
<input type="password" name="password"><br><br>

<label>Firstname: </label>
<input type="text" name="firstname"><br><br>

<label>Lastname </label>
<input type="text" name="lastname"><br><br>

<input type="submit" name="submit">
</fieldset>
</form>
</body>
</html>
```

processUser.jsp

```
<jsp:useBean id="myUser" class="lab6.com.User" scope="request"/>
<jsp:setProperty name="myUser" property="*" />

<%
    int result;

    Class.forName("com.mysql.jdbc.Driver");
    String mySQL = "jdbc:mysql://localhost/cs3107";
    Connection myConnection = DriverManager.getConnection(mySQL, "root", "admin");
    String insertUser = "INSERT INTO userprofile (username, password, firstname, lastname) VALUES (?, ?, ?, ?)";
    PreparedStatement ps = myConnection.prepareStatement(insertUser);

    ps.setString(1, myUser.getUsername());
    ps.setString(2, myUser.getPassword());
    ps.setString(3, myUser.getFirstname());
    ps.setString(4, myUser.getLastname());

    result = ps.executeUpdate();

    if(result > 0) {

        response.sendRedirect("login.jsp");
    }

    myConnection.close();
%>
</body>
```

User.jsp

```
public class User {
    private String username;
    private String password;
    private String firstname;
    private String lastname;

    public String getUsername() {
        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;
    }

    public String getLastname() {
        return lastname;
    }

    public void setLastname(String lastname) {
        this.lastname = lastname;
    }
}
```

Login.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>JSP Page</title>
    </head>
    <body>
        <form action="doLogin.jsp" method="post">
            <legend>Login</legend>
            <label>Username: </label>
            <input type="text" name="username"><br><br>

            <label>Password</label>
            <input type="password" name="password"><br><br>

            <input type="submit" name="Submit">
        </form>
    </body>
</html>
```


doLogin.jsp

```
<jsp:useBean id="user" class="lab6.com.User" scope="request"/>
<jsp:setProperty name="user" property="*" />
<%
    Class.forName("com.mysql.jdbc.Driver");

    String mySql = "jdbc:mysql://localhost/csf3107";
    Connection myConnection = DriverManager.getConnection(mySql, "root", "admin");
    Statement myStatement = myConnection.createStatement();

    String que = "SELECT * FROM userprofile WHERE username = ? AND password = ?";
    PreparedStatement ps = myConnection.prepareStatement(que);
    ps.setString(1, user.getUsername());
    ps.setString(2, user.getPassword());

    ResultSet rs = ps.executeQuery();

    if(rs.next()){
        String firstname = rs.getString("firstname");
        String lastname = rs.getString("lastname");

        session.setAttribute("username", user.getUsername());
        session.setAttribute("firstname", firstname);
        session.setAttribute("lastname", lastname);
        response.sendRedirect("main.jsp");
    }
    else{
        response.sendRedirect("login.jsp?message=Invalid+username+or+password");
    }

    myConnection.close();
%>
```

Main.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@page import="java.sql.*"%>
<%@page import="lab6.com.User"%>
<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>JSP Page</title>
</head>
<body>
<jsp:useBean id="user" class="lab6.com.User" scope="request"/>
<jsp:setProperty name="user" property="*" />
<h1>WELCOME</h1>

<%

String username = (String)session.getAttribute("username");
String firstname = (String)session.getAttribute("firstname");
String lastname = (String)session.getAttribute("lastname");

%>

<p>Username: <%= username %></p>
<p>First Name: <%= firstname %></p>
<p>Last Name: <%= lastname %></p>
</body>
</html>
```

OUTPUT:

User Profile

Username: Marr

Password: ...

Firstname: MARLIANTI

Lastname MUF PIARLIS

Submit

Login

Username:

Password:



WELCOME

Username: marr

First Name: MARLIANTI

Last Name: MUF PIARLIS