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CSM3023

WEB BASED APPLICATION DEVELOPMENT

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OMAR ISMAIL ABDJALEEL ALOMORY

LAB 7(MP2)

Task 1: Perform Basic CRUD Process Using Java Servlet

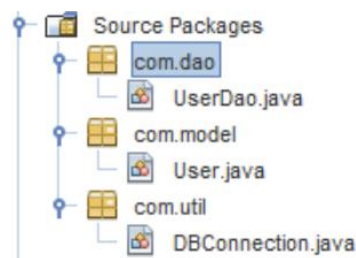
Step 1 - Create table users in CSFLab7 database schema.

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0318 seconds.)

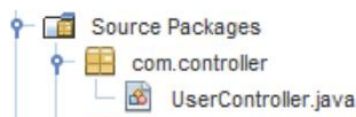
```
CREATE TABLE users( userid VARCHAR(15) NOT NULL, firstname VARCHAR(35), lastname VARCHAR(15), CONSTRAINT users_userid_pk PRIMARY KEY(userid) );
```

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1	userid	varchar(15)	utf8mb4_general_ci	No	None			Change Drop More
<input type="checkbox"/>	2	firstname	varchar(35)	utf8mb4_general_ci	Yes	NULL			Change Drop More
<input type="checkbox"/>	3	lastname	varchar(15)	utf8mb4_general_ci	Yes	NULL			Change Drop More

Step 2 - Create three Java class that representing User (act as a JavaBeans to represent business object), DBConnection (to open and close database connection) and UserDao (act as a Data Access Object (DAO)) to perform CRUD process.



Step 3 - Create UserController servlet in order to control and redirect the request to the respective CRUD process and page.



Step 4 - Create an index.jsp page that act as a main page.

```
7 <%@page contentType="text/html" pageEncoding="UTF-8"%>
8 <!DOCTYPE html>
9 <html>
10 <head>
11 <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
12 <title>Sample Perform CRUD Using Java Servlet</title>
13 </head>
14 <body>
15 <h1>Sample Perform CRUD Using Java Servlet!</h1>
16 <jsp:forward page="/UserController?action=listUser" />
```

Compiled successfully.

```
init:
deps-module-jar:
deps-ear-jar:
deps-jar:
library-inclusion-in-archive:
library-inclusion-in-manifest:
compile:
Created dir: C:\Users\komar\OneDrive - umt.edu.my\Semester 4\CSM3023 WEB BASED APPLICATION DEVELOPMENT by FAIZAN BINTI APLOP APLOP\Lab solution\Lab7\build\generated\src
Created dir: C:\Users\komar\OneDrive - umt.edu.my\Semester 4\CSM3023 WEB BASED APPLICATION DEVELOPMENT by FAIZAN BINTI APLOP APLOP\Lab solution\Lab7\build\generated\classes
Compiling 1 source file to C:\Users\komar\OneDrive - umt.edu.my\Semester 4\CSM3023 WEB BASED APPLICATION DEVELOPMENT by FAIZAN BINTI APLOP APLOP\Lab solution\Lab7\build\generated\classes
```

Step 5 - Create listUser.jsp page to perform retrieving of a list of users.

```
<@page contentType="text/html" pageEncoding="UTF-8"%>
<@taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c"%>
<@taglib uri="http://java.sun.com/jsp/jstl/fmt" prefix="fmt"%>
<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>User Lists</title>
</head>
<body>
<p>List of Users..!</p>
<table border="1">
<thead>
<tr>
<th>User Id</th>
<th>First Name</th>
<th>Last Name</th>
<th colspan="2">Action</th>
</tr>
</thead>
<tbody>
<c:forEach items="${users}" var="user" >
<tr>
<td><c:out value="${user.userid}"/></td>
<td><c:out value="${user.firstname}"/></td>
<td><c:out value="${user.lastname}"/></td>
<td><a href="UserController?action=edit&userId=<c:out value="${user.userid}"/>">Update</a></td>
<td><a href="UserController?action=delete&userId=<c:out value="${user.userid}"/>">Delete</a></td>
</tr>
</c:forEach>
</tbody>
</table>
<p><a href="UserController?action=insert">Add User</a></p>
</body>
</html>
```

Compiled successfully.

The screenshot shows an IDE with the following components:

- Left Panel:** Project Explorer showing 'listUser.jsp' under 'Source Packages'.
- Top Right Panel:** Editor showing the JSP code for 'listUser.jsp'.
- Bottom Panel:** Apache Tomcat Log output showing the compilation process.

The log output indicates a successful compilation:

```
ant -f "C:\Users\komar\OneDrive - umt.edu.my\Semester 4\CSM3023 WEB BASED APPLICATION DEVELOPMENT by FAIZAH BINTI APLOF APLOF\Lab solution\Lab7" -Dmb.internal.action.name=compile.single -Dfo compile-single-jsp:
init:
deps-module-jar:
deps-war-jar:
deps-jar:
library-inclusion-in-archive:
library-inclusion-in-manifest:
compile:
Compiling 1 source file to C:\Users\komar\OneDrive - umt.edu.my\Semester 4\CSM3023 WEB BASED APPLICATION DEVELOPMENT by FAIZAH BINTI APLOF APLOF\Lab solution\Lab7\build\generated\classes
BUILD SUCCESSFUL (total time: 0 seconds)
```

Step 6 - Create user.jsp page as a page for creating new record for user.

```
<head>
  <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
  <title>New Record</title>
</head>
<body>
  <p><b>New Record</b></p>
  <form name="frmAddUser" action="UserController" method="POST">
    <table border="0">
      <tbody>
        <tr>
          <td>User ID :</td>
          <td><input name="userid" type="text" value="" size="25" required></td>
        </tr>
        <tr>
          <td>First Name :</td>
          <td><input name="firstName" type="text" value="" size="40" ></td>
        </tr>
        <tr>
          <td>Last Name :</td>
          <td><input name="lastName" type="text" value="" size="40" ></td>
        </tr>
        <tr>
          <td><input type="hidden" name="action" value="insert" ></td>
        </tr>
        <tr>
          <td>
            <input type="submit" name="submit" value="Submit" >
            <input type="reset" name="cancel" value="Cancel" >
          </td>
        </tr>
      </tbody>
    </table>
  </form>
</body>
</html>
```

Compiled successfully.

```
ant -f "C:\Users\komar\OneDrive - umt.edu.my\Semester 4\CSM3023 WEB BASED APPLICATION DEVELOPMENT by FAIZAH BINTI APLOP APLOP\Lab solution\Lab7" -Ddb.internal.action.name=compile.single -Dfor
compile-single-jsp:
init:
deps-module-jar:
deps-ear-jar:
deps-jar:
library-inclusion-in-archive:
library-inclusion-in-manifest:
compile:
Compiling 1 source file to C:\Users\komar\OneDrive - umt.edu.my\Semester 4\CSM3023 WEB BASED APPLICATION DEVELOPMENT by FAIZAH BINTI APLOP APLOP\Lab solution\Lab7\build\generated\classes
BUILD SUCCESSFUL (total time: 0 seconds)
```

Step 7 - Create editUser.jsp page as a page for updating existing record for specific user.

```
<%@taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c"%>
<%@taglib uri="http://java.sun.com/jsp/jstl/fmt" prefix="fmt"%>
<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Edit User</title>
</head>
<body>
<p>Updating User Profile:</p>
<form name="frmEditUser" action="UserController" method="POST">
<table border="1">
<tbody>
<tr>
<td>User ID :</td>
<td><input type="text" name="userid" readonly="readonly"
value="<c:out value='${user.userid}' />" size="25"></td>
</tr>
<tr>
<td>First Name :</td>
<td><input type="text" name="firstName"
value="<c:out value='${user.firstname}' />" size="40"></td>
</tr>
<tr>
<td>Last Name :</td>
<td><input type="text" name="lastName"
value="<c:out value='${user.lastname}' />" size="40"></td>
</tr>
<tr>
<td><input type="hidden" name="action" value="edit" ></td>
</tr>
<tr>
<td>
<input type="submit" name="submit" value="Submit" >
</td>
</tr>
</tbody>
</table>
</form>
</body>
</html>
```

Compiled successfully.

```
ant -f "C:\Users\komar\OneDrive - umt.edu.my\Semester 4\CSM3023 WEB BASED APPLICATION DEVELOPMENT by FAIZAH BINTI APLOP APLOP\Lab solution\Lab7" -Dmb.internal.action.name=compile.single -Dfor
compile-single-jsp:
init:
deps-module-jar:
deps-ear-jar:
deps-jar:
library-inclusion-in-archive:
library-inclusion-in-manifest:
compile:
Compiling 1 source file to C:\Users\komar\OneDrive - umt.edu.my\Semester 4\CSM3023 WEB BASED APPLICATION DEVELOPMENT by FAIZAH BINTI APLOP APLOP\Lab solution\Lab7\build\generated\classes
BUILD SUCCESSFUL (total time: 0 seconds)
```

Running the program and perform CRUD process

1. Run index.jsp page.
2. Click Add User button to create new record.
3. Click hyperlink Update in order to update an existing record.
4. Click hyperlink Delete in order to delete an existing record.

Running index.jsp

List of Users..!

User Id	First Name	Last Name	Action
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[Add User](#)

Clicking add user button and create new record:

New Record

User ID :

First Name :

Last Name :

Submit

Cancel

Added successfully.

List of Users..!

User Id	First Name	Last Name	Action
S63955	Omar	Alomory	Update Delete

[Add User](#)

Clicking the hyperlink update to edit an existing record.

List of Users..!				
User Id	First Name	Last Name	Action	
S63955	Omar	Alomory	Update	Delete
Add User				

Updating User Profile:

User ID :

S63955

First Name :

Mohammad

Last Name :

Hassan

Submit

Changed

List of Users..!				
User Id	First Name	Last Name	Action	
S63955	Mohammad	Hassan	Update	Delete
Add User				

Deleting records.

List of Users..!				
User Id	First Name	Last Name	Action	
S63955	Mohammad	Hassan	Update	Delete
Add User				

List of Users..!

User Id	First Name	Last Name	Action
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[Add User](#)

Reflection:

1. Why we use servlet for Java Web Application?

Servlets are used for developing Java web applications because they provide a powerful and flexible framework for handling server-side processing and generating dynamic content. Servlet is a java program, exist and executes in j2ee servers, used to receive the http protocol request, process and send response to client. Servlets provide a solid foundation for developing Java web applications by offering platform independence, performance, extensibility, request handling, session management, security, and integration capabilities.

EXERCISES

Q1.

Creating the database:

	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1	username	char(15)	utf8mb4_general_ci		No	None			Change Drop More
<input type="checkbox"/>	2	icno	char(15)	utf8mb4_general_ci		Yes	NULL			Change Drop More
<input type="checkbox"/>	3	firstname	varchar(50)	utf8mb4_general_ci		Yes	NULL			Change Drop More

User Profile Registration

Username:

Someone

IC No:

41241412

First Name:

RandomOne

Submit

Cancel

Profile Registration Successful

Username: Someone

IC No: 41241412

First Name: RandomOne

		username	icno	firstname
<input type="checkbox"/>	Edit Copy Delete	S63955	41241412	Mohamad Nor
<input type="checkbox"/>	Edit Copy Delete	Someone	41241412	RandomOne

Q2

Student Registration

Student ID:

S63955

Name:

Omar Alomory

Submit

Confirmation Page

Student ID: S63955

Name: Omar Alomory

Proceed

Notification Page

Confirmation ID: b6901879-1bf0-4b99-8b9e-93d963ed8e55

Student ID: S63955

Name: Omar Alomory

Notification sent to end user!