**Assignment 3:** In this assignment, we practice J2EE Database Programming using JSP/JSTL.

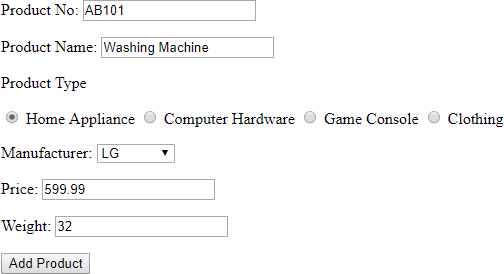
**Part A)** Design the following Database /Table using *MySQL WorkBench*

1. Create a new database in MySQL .
   * Database Name : A3
2. Create a new Table in MySQL.
   * Table Name is **PRODUCT** which has the following structure:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ProductNo | ProductName | ProductType | Manufacturer | Price | Weight |
| Varchar(5),  PrimaryKey | Varchar(25) | Varchar(25) | Varchar(25) | Decimal  xxx.xx | Decimal  xx.xx |

**Part B)** Create a new Web Application and develop the following **JSP pages** to interact with a MySQL server (as demonstrated in class):

1. Develop the following JSP page ( name it **Add-Product-Form.jsp**)



Add the proper tags which display the following message when user clicks on add product button:

# The following information is received:

Product No is AB101

Product name is Washing Machine Product type is Home Applience

Manufacturer is LG Price is 599.99 Weight is 32

1. Save **Add-Product-Form.jsp** as **Insert-records.jsp** , remove the EL commands for displaying the message and add the following functionality.
   1. When user clicks on **Add Product** button, the program reads the form data and inserts them into the **PRODUCT** table using JSTL core and sql libraries.
   2. The program perform form validation to ensure the Price range of each product is between $100~$900
   3. The program will displays all existing records of **PRODUCT** in HTML table format.

***NOTE****: the page shouldn’t insert any record until user press the* ***Add Product*** *button. However, when user opens the page, the form and the existing records can be displayed!*

<%@ page language=*"java"* contentType=*"text/html; charset=ISO-8859-1"*

pageEncoding=*"ISO-8859-1"*%>

<%@ taglib uri= *"http://java.sun.com/jsp/jstl/core"* prefix=*"c"* %>

<%@ taglib uri= *"http://java.sun.com/jsp/jstl/sql"* prefix=*"sql"* %>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"ISO-8859-1"*>

<meta charset=*"utf-8"*>

<meta name=*"viewport"* content=*"width=device-width, initial-scale=1"*>

<link rel=*"stylesheet"* href=*"https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css"*>

<script src=*"https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"*></script>

<script src=*"https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"*></script>

<title>Assignment 3- Step 1</title>

<style>

*.column* {

float: *left*;

width: *25%*;

}

**table** {

font-family: *arial, sans-serif*;

border-collapse: *collapse*;

width: *100%*;

}

**td,** **th** {

border: *1px solid #dddddd*;

text-align: *left*;

padding: *8px*;

}

**tr***:nth-child*(*even*) {

background-color: *#dddddd*;

}

</style>

</head>

<body>

<sql:setDataSource

var=*"db"*

driver=*"com.mysql.jdbc.Driver"*

url=*"jdbc:mysql://localhost:3306/assignment3"*

user=*"root"*

password=*""*/>

<form method = *"post"* >

<pre>

productNo: <input type=*"text"* name=*"productNo"*>

productName: <input type=*"text"* name=*"productName"*><br>

productType:

<div class=*"column"*>

<input type=*"radio"* name=*"productType"* margin-right: 0 checked value =*"Home Appliances"*>Home Appliances

</div>

<div class=*"column"*>

<input type=*"radio"* name=*"productType"* margin-right: 0 value = *"Computer Hardware"*>Computer Hardware

</div>

<div class=*"column"*>

<input type=*"radio"* name=*"productType"* style="margin-right: *0*" value =*"Game Console"*>Game Console

</div>

<div class=*"column"*>

<input type=*"radio"* name=*"productType"* style="margin-right: *0*" value =*"Clothing"*>Clothing

</div>

<br>

<br>

manufacturer: <input type=*"text"* name=*"manufacturer"*>

price: <input type=*"number"* name=*"price"*>

<c:if test = *"*${(param.price < 100) && (param.price > 900)}*"*>

<p>Try again!Enter a value between $100 to $900</p>

price: <input type=*"text"* name=*"price"*>

</c:if>

weight: <input type=*"text"* name=*"weight"*>

<input type=*"submit"* value=*"Add Product"*>

</pre>

</form>

<p>The following information is received:</p>

Product No is <c:out value=*"*${param.productNo}*"*/><br>

Product Name is <c:out value=*"*${param.productName}*"* /><br>

Product Type is <c:out value=*"*${param.productType}*"* /><br>

Manufacturer is <c:out value=*"*${param.manufacturer}*"* /><br>

Price is <c:out value=*"*${param.price}*"* /><br>

Weight is <c:out value=*"*${param.weight}*"* /><br>

<sql:update dataSource=*"*${db}*"* var=*"count"*>

INSERT INTO product VALUES('${param.productNo}','${param.productName}','${param.productType}','${param.manufacturer}',

'${param.price}', '${param.weight}')

</sql:update>

<sql:query dataSource=*"*${db}*"* var=*"rs"*>

select \* from product;

</sql:query>

<br>

<table>

<tr>

<th>ProductNo</th>

<th>ProductName</th>

<th>ProductType</th>

<th>Manufacturer</th>

<th>Price</th>

<th>Weight</th>

</tr>

<c:forEach var=*"row"* items=*"*${rs.rows}*"*>

<tr>

<td>${row.productNo}</td>

<td>${row.productName} </td>

<td>${row.productType} </td>

<td>${row.manufacturer}</td>

<td>${row.price}</td>

<td>${row.weight}</td>

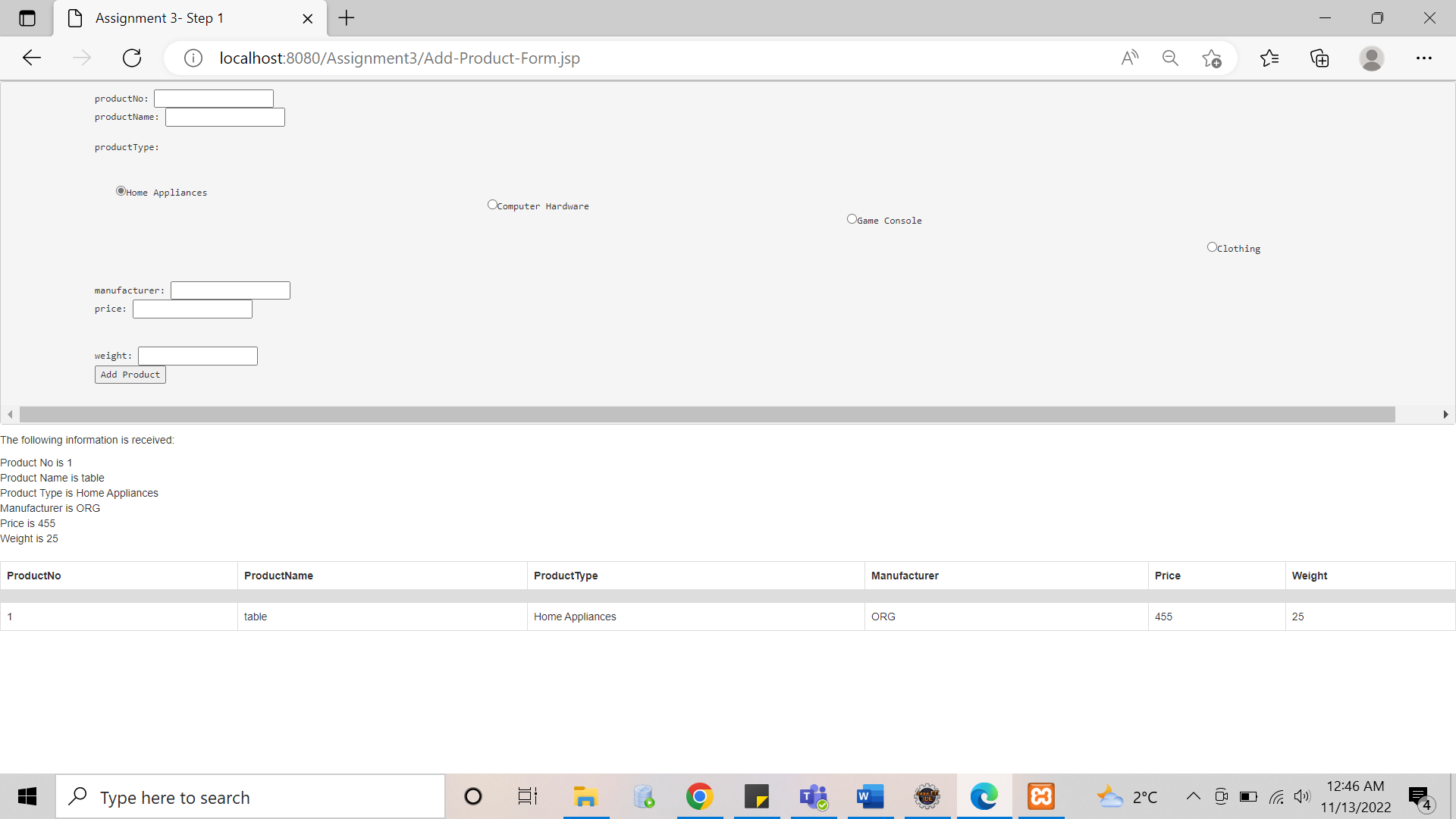
</tr>

</c:forEach>

</table>

</body>

</html>



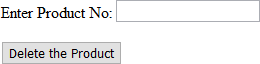
A screenshot of a computer

Description automatically generated

Graphical user interface, text, application

Description automatically generated

1. Develop a JSP page (name it **Delete-Records**), which displays the following form and delete all related record from the **PRODUCT** table, using JSTL core and sql libraries. The program displays the remaining records of **PRODUCT** in HTML table format below the “Delete the Product” button.



<%@ page language=*"java"* contentType=*"text/html; charset=ISO-8859-1"*

pageEncoding=*"ISO-8859-1"*%>

<%@ taglib uri= *"http://java.sun.com/jsp/jstl/core"* prefix=*"c"* %>

<%@ taglib uri= *"http://java.sun.com/jsp/jstl/sql"* prefix=*"sql"* %>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"ISO-8859-1"*>

<title>Delete Record</title>

<style>

**table** {

font-family: *arial, sans-serif*;

border-collapse: *collapse*;

width: *100%*;

}

**td,** **th** {

border: *1px solid #dddddd*;

text-align: *left*;

padding: *8px*;

}

**tr***:nth-child*(*even*) {

background-color: *#dddddd*;

}

</style>

</head>

<body>

<sql:setDataSource

var=*"db"*

driver=*"com.mysql.jdbc.Driver"*

url=*"jdbc:mysql://localhost:3306/assignment3"*

user=*"root"*

password=*""*/>

<form>

<pre>

Enter Product Number: <input type=*"text"* name=*"productNo"*>

<input type=*"submit"* value=*"Delete Product"*>

</pre>

</form>

<c:set var=*"productNo"*/>

<sql:update dataSource=*"*${db}*"* var=*"count"*>

DELETE FROM product WHERE productNo = ?

<sql:param value=*"*${param.productNo}*"* />

</sql:update>

<sql:query dataSource=*"*${db}*"* var=*"rs"*>

select \* from product;

</sql:query>

<br>

<table>

<tr>

<th>ProductNo</th>

<th>ProductName</th>

<th>ProductType</th>

<th>Manufacturer</th>

<th>Price</th>

<th>Weight</th>

</tr>

<c:forEach var=*"row"* items=*"*${rs.rows}*"*>

<tr>

<td>${row.productNo}</td>

<td>${row.productName} </td>

<td>${row.productType} </td>

<td>${row.manufacturer}</td>

<td>${row.price}</td>

<td>${row.weight}</td>

</tr>

</c:forEach>

</table>

</body>

</html>

Graphical user interface, text, application

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application

Description automatically generated

**Part C)** Open the *sample.jsp* file. Using your own word, explain the followings:

* How does this program work?

It is a jsp program that runs based on the numeric format functions.

* What is the purpose of using c:set, fmt:formatNumber?

C:set function assigning the values to the variable “num”.

Fmt:formatNumber is the number formatting functions like currency which adds , as per the currency rules. Then defining how much number we want before and after decimal.

Graphical user interface, text, application

Description automatically generated

Graphical user interface, application, Word

Description automatically generated

**Part D)** Develop a new JSP page using the following snippet:

<p> step 1: </p>

<%!**int** p=500; %>

<%=p %>

<p> step 2: </p>

<c:set var=*"q"* value=*"600"* />

<c:out value=*"*${q}*"*/>

<c:out value=*"*${p}*"*/>

<p> step 3: </p>

<p>${p} ${q}</p>

1. Using your own word, explain how this code works.
2. You may notice that some of the expected values are not being displayed. Why? How to fix this issue? **You need to explain your answer in 60~100 words.**

<%!**int** p = 500;%> declaring variable with its initial value.

<%=p%> is dynamic content like whatever number we will provide in the line number 13 that will get assigned to p.

Then in step 2 we are only setting the value for Q. So in step2 and step3 only prints q not p.

So I have set the value for variable p as well. Now it is printing both p and q in step 2 and 3.

Graphical user interface, text, application

Description automatically generated

Graphical user interface, application, Word

Description automatically generated

Text, letter, whiteboard

Description automatically generated

Graphical user interface, application, Word

Description automatically generated

# Submission:

Take screenshot of the project in your IDE (the structure of files/libraries) and add some screenshot to show how the web application works. Save the screenshots in MS-Word file.

Submit the followings:

1. Submit the video recording.
2. Also submit
   1. MS-word file (answer to the questions + screenshots)
   2. The web application (ZIP format)
   3. Export the database (.sql)