UNIVERSITY MALAYSIA TERENGGANU
FACULTY OF COMPUTER SCIENCE & MATHEMATICS

Web Based Application Development
CSM 3023

LAB REPORT 4 :
JSP: SCRIPLET EXPRESSION & STANDARD ACTIONS

Prepared by:
NUR ARIFAH BINTI MOHD HANAFIAH
S66428

Prepared for:
DR MOHAMAD NOR BIN HASSAN

BACHELOR OF COMPUTER SCIENCE (MOBILE COMPUTING) WITH HONORS
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Week 3

JSP: Scriptlet, Expression & Standard Actions

Web Programming 2

Name:
Matric #:
Semester:
Lab:
Demonstrator:

Lecturers

Revision History

Revision Date	Previous Revision Date	Summary of Changes	Changes Marked
		First Issue	Mohamad Nor Hassan
		Second Issue	Dr Rabiei Mamat Dr Faizah Aplop Dr Fouad Ts Dr Rosmayati Mohemad Fakhrul Adli Mohd Zaki
21/02/2019		Addition of Revision History, Table of Contents, Formatting Cover Page	Fakhrul Adli Mohd Zaki

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Arahan:

Manual makmal ini adalah untuk kegunaan pelajar-pelajar Pusat Pengajian Informatik dan Matematik Gunaan (PPIMG), Universiti Malaysia Terengganu (UMT) sahaja. Tidak dibenarkan mencetak dan mengedar manual ini tanpa kebenaran rasmi daripada penulis.

Sila ikuti langkah demi langkah sebagaimana yang dinyatakan di dalam manual. Tandakan (√) setiap langkah yang telah selesai dibuat dan tulis kesimpulan bagi setiap aktiviti yang telah selesai dijalankan.

Instruction:

This laboratory manual is for use by the students of the School of Informatics and Applied Mathematics (PPIMG), Universiti Malaysia Terengganu (UMT) only. It is not permissible to print and distribute this manual without the official authorisation of the author.

Please follow step by step as described in the manual. Tick (√) each step completed and write the conclusions for each completed activity.

Task 1: Using JSP Scripting

Objective : JSP Scriptlet and JSP Expression in application.

Problem : Prepare a simple interface to perform the following payment process;

Description

i. If Customer Type is Normal Customer (assign value as "1") and Order Quantity > 100, customer entitle 10% discount.

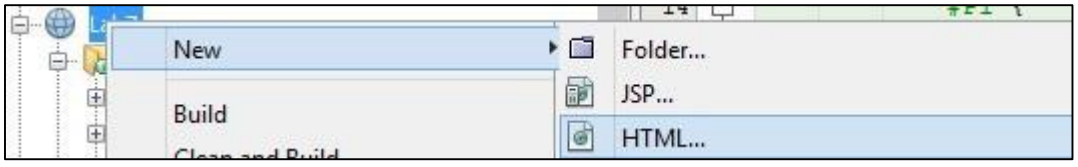
ii. If Customer Type is Privilege Customer (assign value as "2") and Order Quantity > 100, customer entitle 25% discount.

iii. Order Quantity must be in number.

iv. Finally, display the results.

Estimated time : 40 minutes

1. Create Project *Lab3*.
2. Create a new HTML's file.



3. Type file name as *customer*.

4. Prepare the following Graphical User Interface (GUI).

5. You must ensure the amount must be written as number.

6. The value for **Normal Customer** is "1" and **Privilege Customer** is "2"

7. Create a new file name known as *processCustomer.jsp*.

8. Define `related` variables and methods as below.

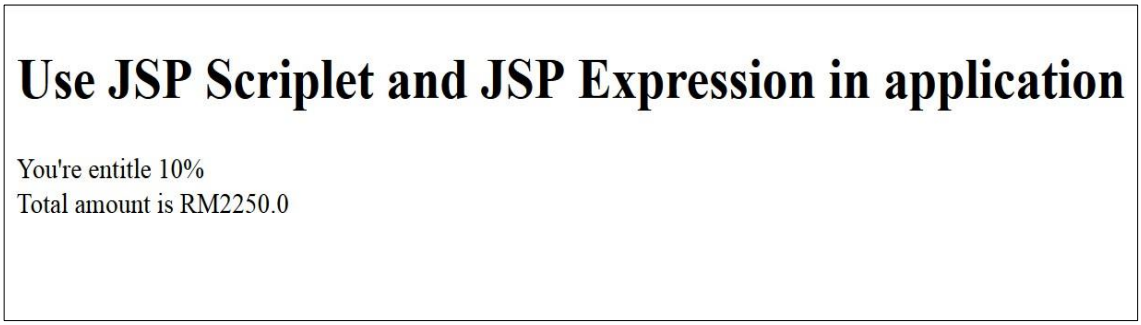
```
<%
    final int price = 10;

    //Using JSP Scriptlet...
    String cust_no1 = request.getParameter("cust_no");
    int quantity1 = Integer.parseInt(request.getParameter("quantity"));
    String cust_type1 = request.getParameter("cust_type");

    //Determine customer..
    if (cust_type1.equals("1") && quantity1 > 100) {
        out.print("You're entitle " + "10%");%> <br>  <%
            out.print("Total amount is RM" + quantity1 * price * 0.9);
        } else if (cust_type1.equals("2") && quantity1 > 100) {
            out.print("You're entitle " + "25%");%> <br>  <%
                out.print("Total amount is RM" + quantity1 * price * 0.75);
                    } else {
                        out.print("You're not entitle discount..!");%> <br>  <%
                                        out.print("Total amount is RM" + quantity1 * price);
                                    }
%>
```

9. Compile *customer.html* and *processCustomer.jsp* file.

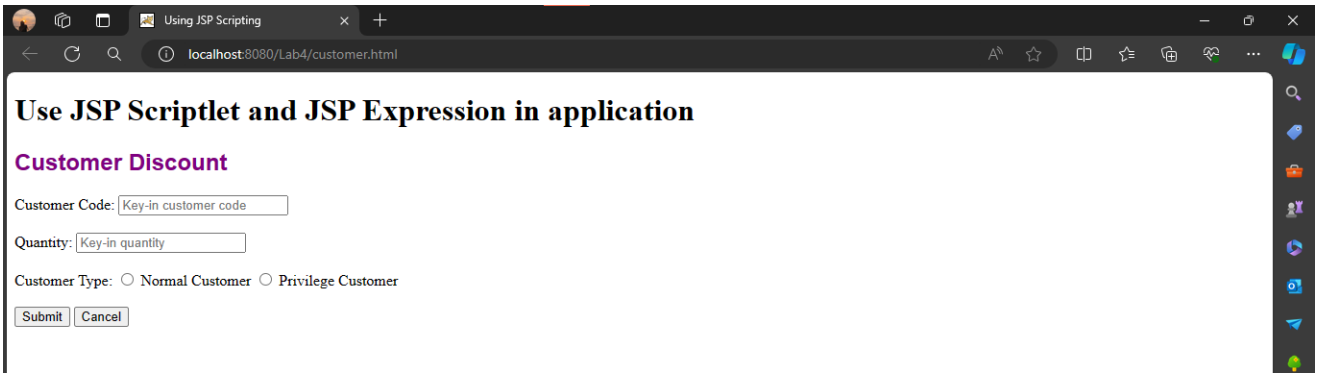
10. Run *customer.html*.

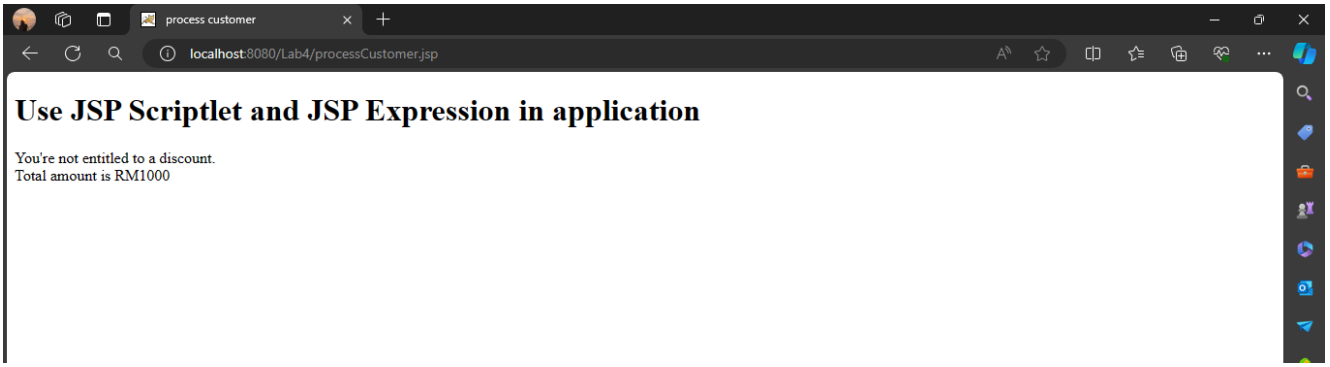
11. Enter information to the interface.

12. Output will appear in web browser.



The Output :





Reflection

1. What you have learnt from this exercise?

   I learn how to create a simple interface for the question and how to apply JSP Scriptlet and JSP Expression in application.

2. Explain three (3) type of JSP scripting?

   - **Scriptlets (<% ... %>) let you write Java code directly inside the JSP file using <% ... %> tags.**
   - **Expressions (<%= ... %>) help display Java variables or expressions directly in the HTML output using <%= ... %> tags.**
   - **Declarations (<%! ... %>) are used to declare Java variables or methods that can be accessed throughout the JSP file using <%! ... %> tags.**

Task 2: Using JSP (Scripting, Declaration and Expression)

Objective : Use JSP Declaration tag, JSP Scriptlet and JSP Expression in application.

Problem Description : Create currency conversion page to Malaysia Ringgit into US Dollar, Euro or Pound Sterling.

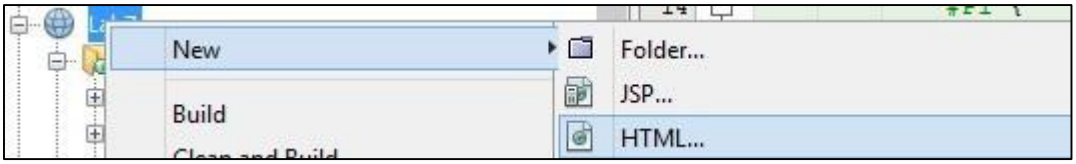
1 USD = RM3.92

1 Pound Sterling = RM5.96

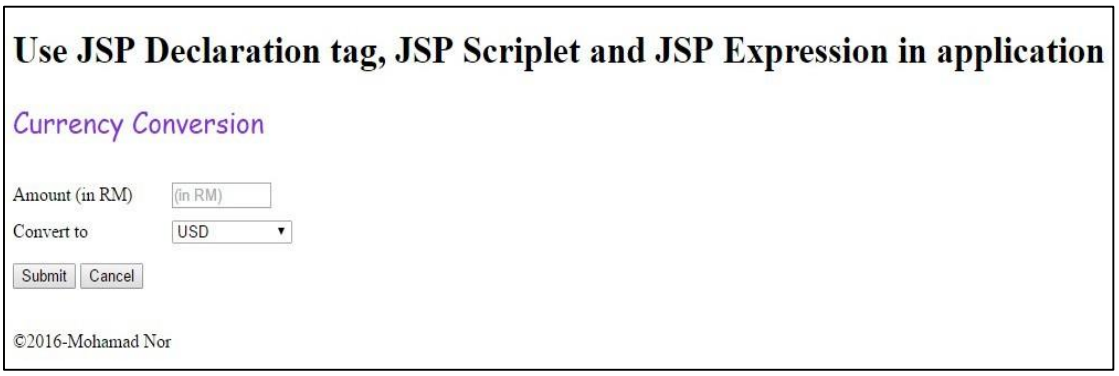
1 Euro = RM4.47;

Estimated time : 40 minutes

1. Choose Project *Lab3*.
2. Create a new HTML's file.



3. Type file name as *currencyConversion*.
4. Prepare the following Graphical User Interface (GUI).



5. You must ensure the amount must be written as number.

6. The value for USD is “1”, Pound Sterling is “2” and Euro is “3”

7. Create a new file name known as *processCurrency.jsp*.

8. Define related variables, currency rate as a constant and method *calculateRate(String code, int amount)* in JSP declaration tag as below.

```
<%!
    //Added by : 10 April 2016 - Mohamad Nor
    //Define constant....
    final double USD = 3.92;
    final double STG = 5.96;
    final double EURO = 4.47;

    //Define method to perform currency exchange....
    private double calculateRate(String currency, int amount)
    {
        double currencyChange=0.00f;

        if ( currency.equals("1") )
           currencyChange = (double)( amount * USD);
        if ( currency.equals("2") )
           currencyChange = (double)( amount * STG);
        if ( currency.equals("3") )
           currencyChange = (double)( amount * EURO);

        return currencyChange;  //return the resutt....
    }
%>
```

9. In your JSP scriptlet, retrieve the value for *Amount* and *Convert to* and assign to respective variables.

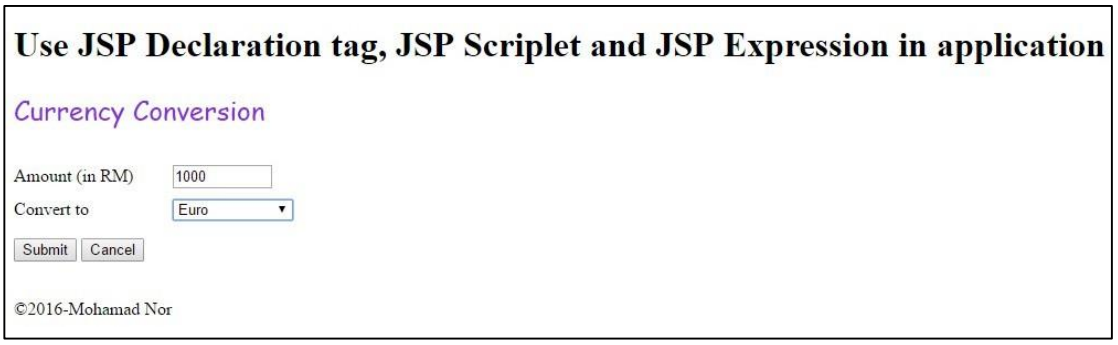
10. Call method *calculateRate(String code, int amount)* to perform currency conversion.

11. Finally, display the result using JSP Expression tag.

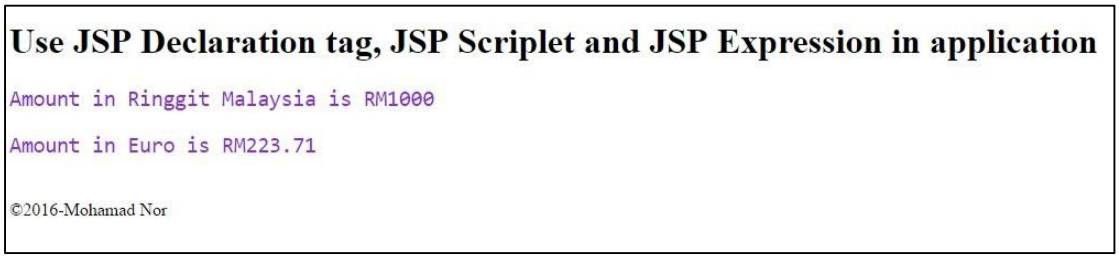
12. Compile *currencyConversion.html* and *processCurrency.jsp* file.

13. Run *currencyConversion.html*.

14. Enter the following information



15. Output will appear in web browser (*Note: Amount must be in 2 decimal places*).



The Output:

Reflection

1. What have you learn from this exercise?

I learn how to use JSP Declaration tag, JSP Scriptlet and JSP Expression In right way.

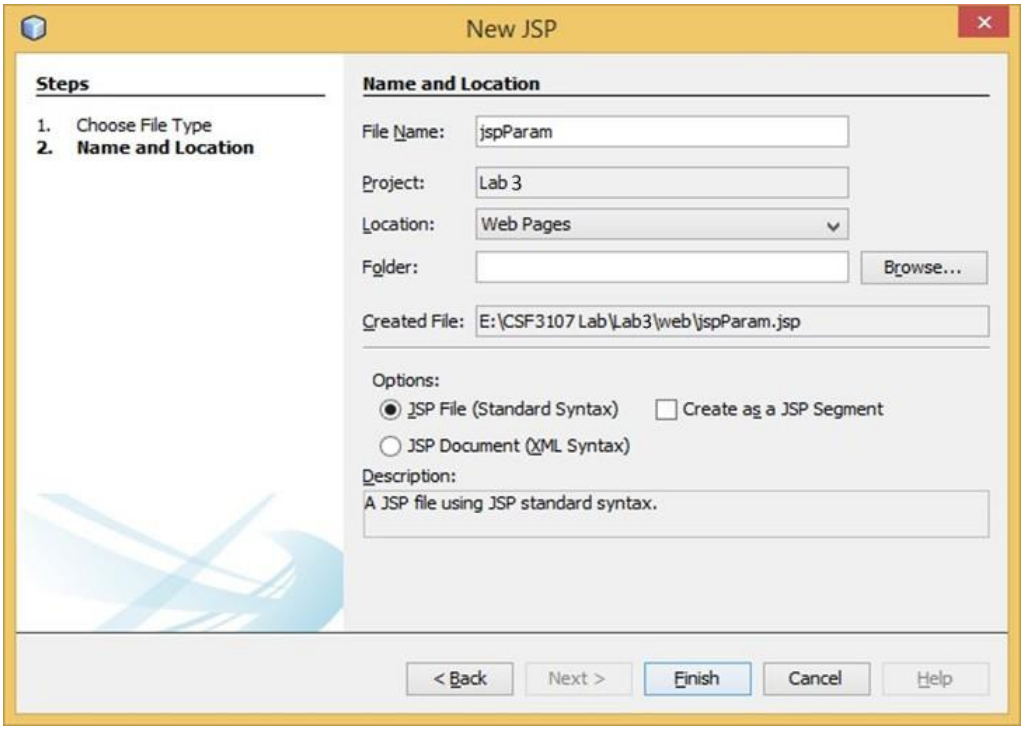
Task 3: Using JSP Standard Action (Include and Param)

Objective : Using <*jsp:include*> and <*jsp:param*> to display information on JSP page

Problem Description : Display the course information.

Estimated time : 20 minutes

1. Go to Project *Lab3*.
2. Create a new JSP's file known as *jspParameter*.



3. Prepare the following HTML's syntax.

```
<%--
    Document   : jspParam
    Created on : 11-Apr-2016, 14:06:19
    Author     : Mohamad Nor Hasssan
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Using JSP Standard Action </title>
    </head>
    <body>
        <h1>Using jsp:include and jsp:param to display information on JSP page</h1>
    </body>
</html>
```

4. Add Java scriptlet.

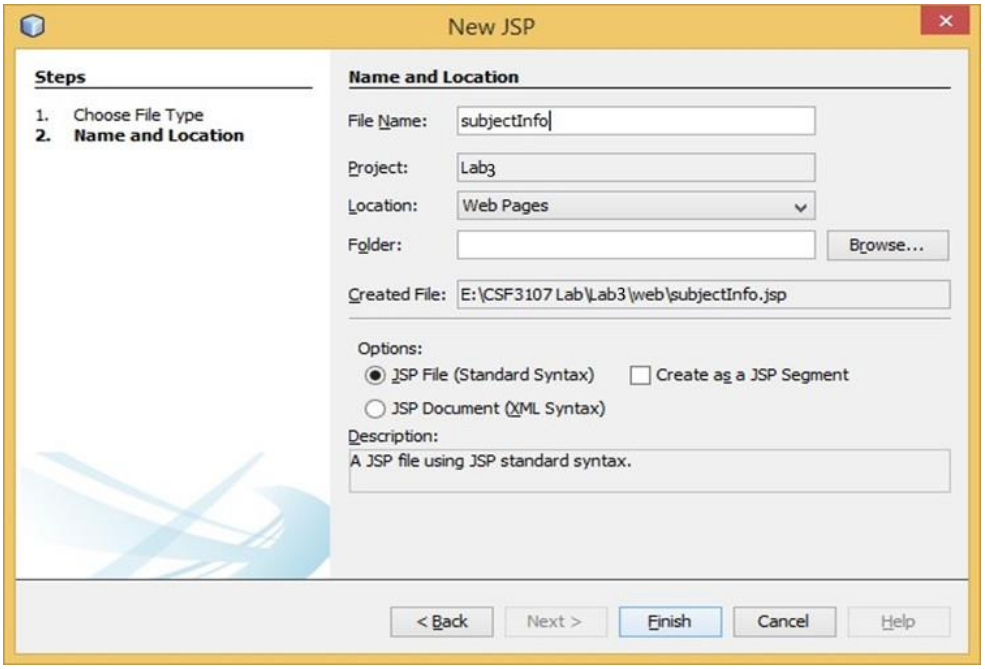
```
    <body>
        <h1>Using jsp:include and jsp:param to display information on JSP page</h1>
        <%
            String sCode = "CSF3107";
            String sSubject = "Web Programming 2";
            String sCredit = "3(2+1)";
        %>
    </body>
```

5. Add JSP Standard Action <*jsp:include*> to call *subjectInfo.jsp's* page and <*jsp:parameter*> to store the subject's information .

```
        <!-- Call subjectInfo.jsp page & passing course information
             to respective parameters...-->
        <jsp:include page="subjectInfo.jsp" flush="true">
            <jsp:param name="code" value="<%=sCode%>"/>
            <jsp:param name="subject" value="<%=sSubject%>"/>
            <jsp:param name="credit" value="<%=sCredit%>"/>
        </jsp:include>
    </body>
```

6. Save *jspParameter.jsp*'s file.

7. Create another JSP's file known as *subjectInfo*.



8. Write the following HTML's syntax.

```
<%--
    Document   : subjectInfo
    Created on : 11-Apr-2016, 14:45:36
    Author     : Mohamad Nor
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Using JSP Standard Action</title>
    </head>
    <body>
        <h1>Calling subjectInfo.jsp page</h1>
    </body>
</html>
```

9. Add three (3) paragraphs and use JSP expression to retrieve and assign value to these paragraphs.

```
    <body>
        <h1>Calling subjectInfo.jsp page</h1>
        <p>Code = <%=request.getParameter("code")%></p>
        <p>Subject = <%=request.getParameter("subject")%></p>
        <p>Credit = <%=request.getParameter("credit")%></p>
    </body>
```

11. Save all files.

12. Compile and run *jspParameter.jsp*'s file.

13. Output will appear in web browser.

The Output:

Reflection

1. What you have learnt from this exercise?

I learn how to using <*jsp:include*> and <*jsp:param*> to display information on JSP page

2. List **TWO (2)** other JSP Standard Action Tag.

- **<jsp:include> :This tag brings content from another file (like another JSP or HTML file) into the current page.**
- **<jsp:forward>: This tag sends the user's request to another file for processing.**

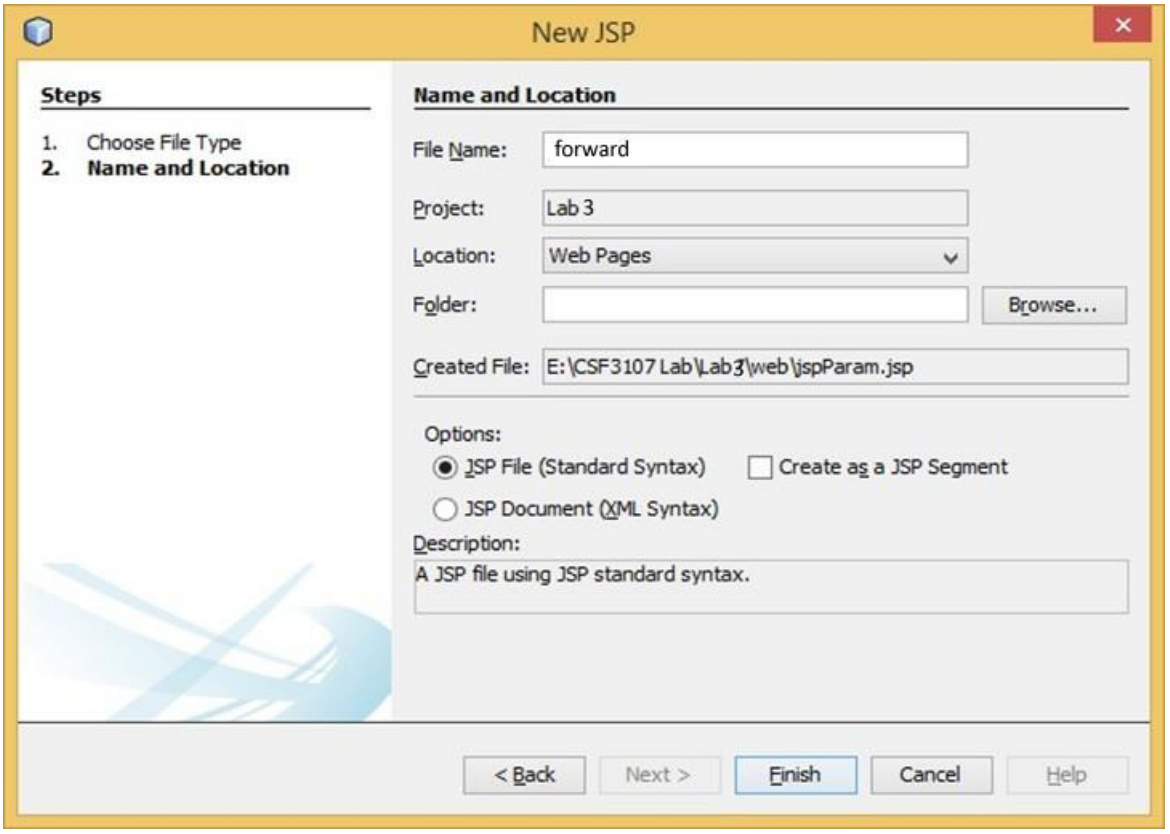
Task 4: Using JSP Standard Action (Forward)

Objective : Using <*jsp: forward*> to display user information and object on JSP page

Problem : Display user information.

Estimated time : 20 minutes

1. Go to Project *Lab3*.
2. Create a new JSP's file known as *forward*.



3. Prepare the following HTML's syntax.

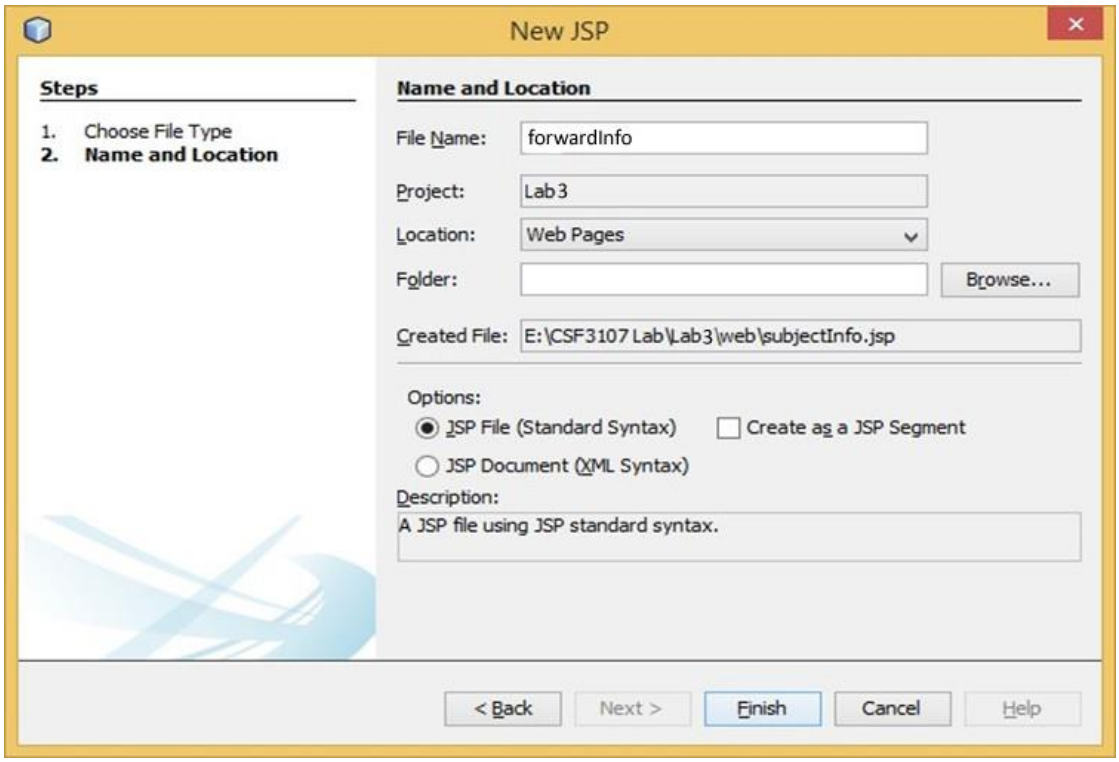
```
<html>

    <head>

        <title>Using JSP Standard Action(forward)</title>

    </head>

    <body>
        <h2>Using jsp:forward to display user info.</h2>

    </body>

</html>
```

4. Add JSP Standard Action <*jsp:forward*> to call *forwardInfo.jsp's* page and <*jsp:parameter*> to store the user's information.

```
<body>
    <h2>Using jsp:forward to display user info.</h2>
    <jsp:forward page="forwardInfo.jsp">
        <jsp:param name= "U_Name" value="Fouad Abdulameer"/>
        <jsp:param name= "Email" value="fouadaug@gmail.com"/>
        <jsp:param name= "Nationality" value="Iraqi"/>
        <jsp:param name= "Background" value="Developer"/>
    </jsp:forward>

</body>
```

5. Save *forward.jsp*'s file.

6. Create another JSP's file known as *forwardInfo*.



7. Write the following code.

```
<html>
    <head>
        <title>&lt;Forwarded_Action Example in JSP&gt;</title>
    </head>
    <body>

        <% String name = request.getParameter("U_Name"); %>
        <% String Email = request.getParameter("Email"); %>
        <% String Nationality = request.getParameter("Nationality"); %>
        <% String Background = request.getParameter("Background"); %>
        <%  if (name != null) {%>
        <b><br><br><h2 align="center">

                <%=name%><br>
                <%=Email%><br>
                <%=Nationality%><br>
                <%=Background%><br><br>

                <% out.print("Today is:" + java.util.Calendar.getInstance().getTime());%>
            </h2></b></br>
            <%}%>
    </body>
</html>
```

8. Save all files.

9. Compile and run *forward.jsp*'s file.

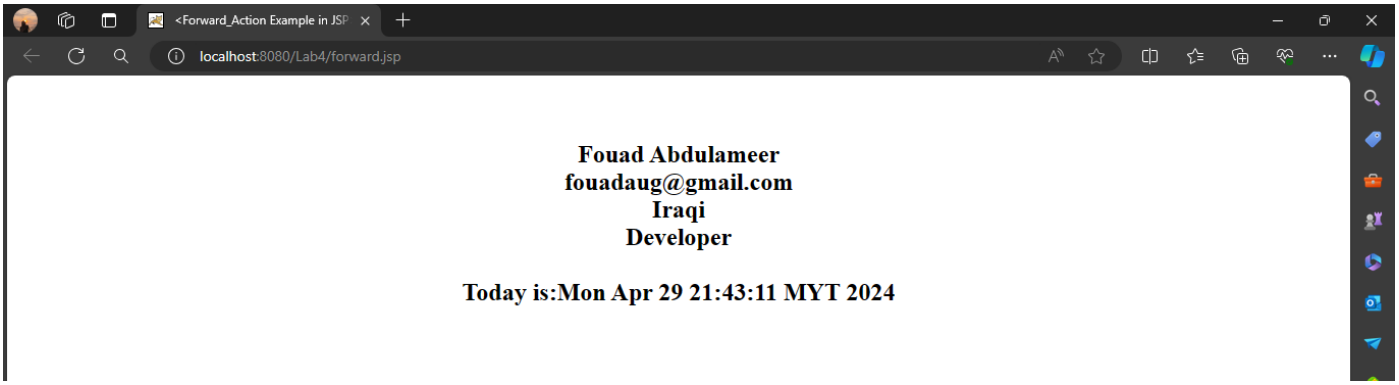
10. Output will appear in web browser.

Reflection

1. What you have learnt from this exercise?
   I learn how to using <*jsp: forward*> to display user information and object on JSP page

2. List **TWO(2)** More JSP Standard Action Tag.
   <jsp:useBean> : This tag creates Java objects (called JavaBeans) that you can use in your JSP page.
   <jsp:setProperty> : This tag is used to set values or properties for JavaBeans that you've created in your JSP page.

The Output:



Task 5: Use Java Scriptlet To Construct Business Logic

Objective : Use Java Scriplet to perform business logic.

Problem Description : Create a simple web based form to calculate the insurance quotation.

Coverage type – Third Party (value as "1")

Comprehensive ((value as "2")

Formula for insurance comprehensive

NCD = 55%, 1.8% x market price

NCD = 35%, 2.4% x market price

NCD = 25%, 3.0% x market price

NCD = 10%, 3.8% x market price

Formula for third party

NCD = 55%, 1.2% x market price

NCD = 35%, 1.8% x market price

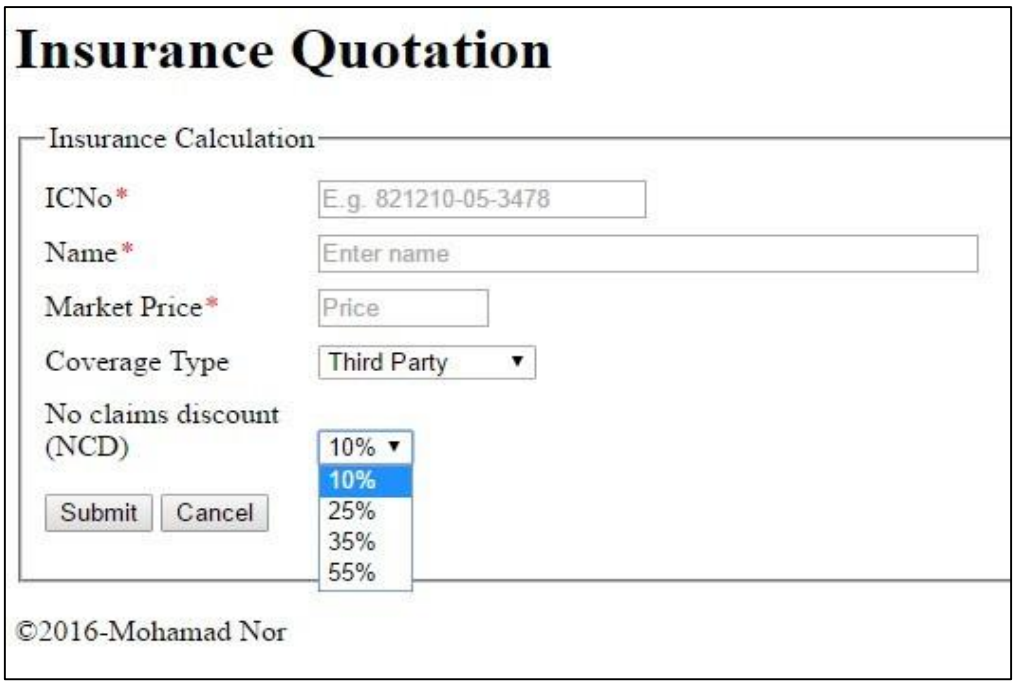
NCD = 25%, 2.5% x market price

NCD = 10%, 3.3% x marketprice

Estimated time : 50 minutes

1. Go to project *Lab3*.
2. Create a new JSP's file as *insuranceQuotation*.

3. Prepare the following Graphical User Interface (GUI).



4. You need to ensure all front-end validation take place.

5. Creating another JSP's file known as *processInsuranceQuo.jsp*.

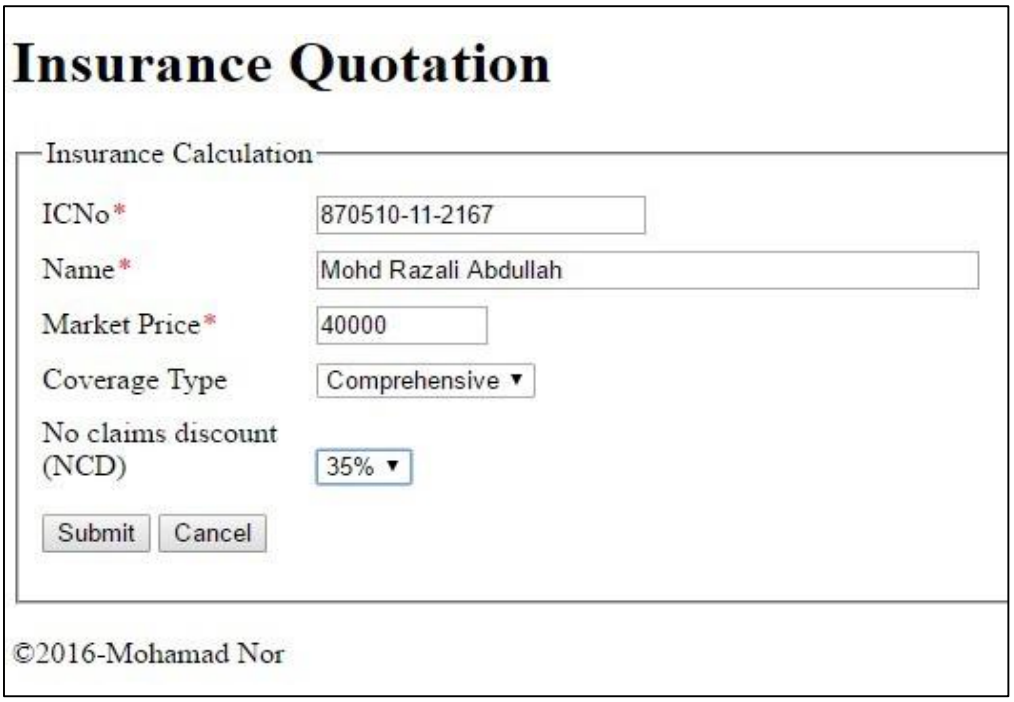
6. Use Java Scriplet to perform the business logic for the application in page *processInsuranceQuo.jsp*.

7. Final insurance amount must be added with 6% GST.

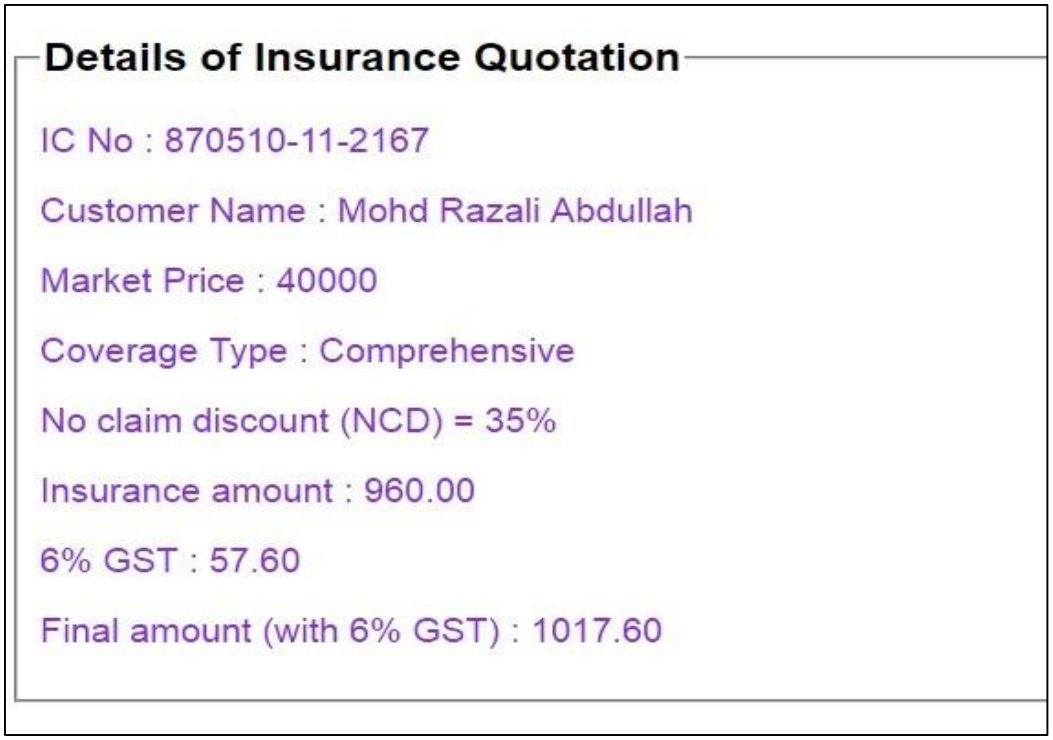
8. Save your file.

9. Right click *insuranceQuotation.jsp* and compile the program.

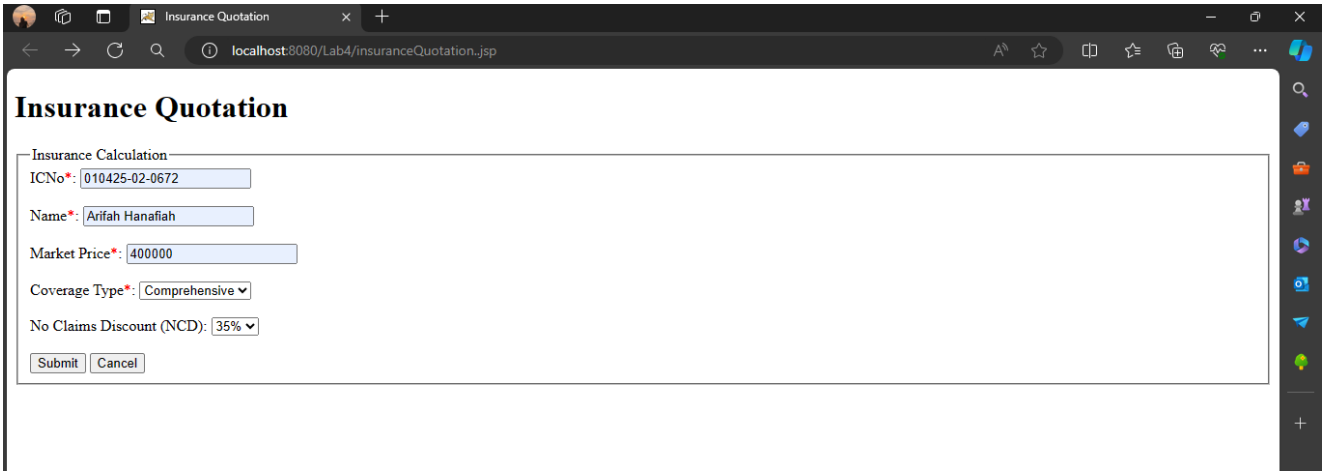
10. Test your application by key-in the following information.



11. You should get the following output.



The Output :



Reflection

1. What you have learnt from this exercise?
   I learn how use Java Scriplet to perform business logic

2. List all Java features you used in Java Scriptlet.
   - **Declaration of Variables:** You declared Java variables using statements like String icNo = ..., String name = ..., double amount = ..., etc. This is a basic feature of Java.
   - **Request Parameter Retrieval:** You retrieved request parameters from the HTML form using request.getParameter("parameterName"). This is part of Java Servlets and JSP, allowing you to access form data sent to the server.
   - **Type Conversion:** You performed type conversion from string to integer using Integer.parseInt(stringValue). This is a Java feature for converting strings to numeric types.
   - **Conditional Statements:** You used conditional statements such as if and switch-case to control the flow of your logic based on certain conditions. This is a fundamental feature of Java programming.
   - **Mathematical Operations:** You performed mathematical operations like multiplication (*) and addition (+) to calculate insurance amounts and GST. These are basic arithmetic operations supported by Java.

- **String Formatting:** You formatted strings using String.format("%.2f", value) to ensure that decimal values are displayed with two decimal places. This is a feature of Java for string formatting.
- **HTML Output:** You used <%= ... %> to output Java variables directly into the HTML response. This is a feature of JSP known as expression tags, allowing you to embed Java code directly in your HTML output.

Exercise

1. Write a simple application to calculate and display a person's body mass index (BMI). The BMI is often used to determine whether a person is overweight or underweight for his or her height. A person's BMI is calculated with the following formula:

$$\textbf{BMI} = \textbf{weight} / \textbf{height}^2$$

where weight is measured in kilogram and height is measured in meter. User should enter his or her weight and height and then display the user's BMI.

The program should also display a message indicating whether the person has optimal weight, is underweight, or is overweight. A person's weight is considered to be optimal if his or her BMI is between 18.5 and 25. If the BMI is less than 18.5, the person is considered to be underweight. If the BMI value is greater than 25, the person is considered to be overweight.

The Output :