

**UNIVERSITI MALAYSIA TERENGGANU**

**CSM3023 – WEB PROGRAMMING 2**

**BACHELOR OF COMPUTER SCIENCE (MOBILE COMPUTING) WITH HONORS**

**LAB 5 – JSP: JavaBeans & Java Standard Tag Library (JSTL)**

**SEMESTER II 2023/2024**

**Prepared for:**

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**Prepared by:**

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(S66355)

Link Github :

<https://github.com/arifhaikal2001/CSM3023-LAB-5.git>

**Task 1: Using Scriplet to Access a Simple JavaBeans**

Code :

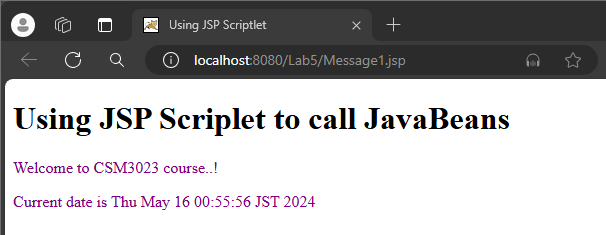
Message1.jsp

|  |
| --- |
| <%--  Document : Message1  Created on : 8 May 2024, 2:56:17 pm  Author : ARIF HAIKAL  --%>  <%@page contentType="text/html" pageEncoding="UTF-8"%>  <%@page language="java"%>  <%@page info="Using JSP Standard Action to call JavaBeans"%>  <%@page import="java.util.Date, lab5.com.Message"%>  <!DOCTYPE html>  <html>  <head>  <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">  <title>Using JSP Scriptlet</title>  </head>  <body>  <h1>Using JSP Scriplet to call JavaBeans</h1>    <%  Message objMsg = new Message();  objMsg.setMsg("Welcome to CSM3023 course..!");    out.println("<p><font color=\"purple\">" + objMsg.getMsg() + "</font></p>");  out.println("<p style=\"color:purple;\">Current date is " + new java.util.Date() + "</p>");  %>  </body>  </html> |

Message.java

|  |
| --- |
| package lab5.com;  public class Message {    private String msg;  public Message() {  }  public String getMsg() {  return msg;  }  public void setMsg(String msg) {  this.msg = msg;  }  } |

Output :



**Reflection**

1. What you have learnt from this exercise?

* How to show a message, time and date using JSP.

1. Explain the differences when calling JavaBeans using JSP Standard Action and Java Scriptlet.

* While Java Scriptlet mixes Java code directly within HTML, calling JavaBeans using JSP Standard Action uses tags to isolate business logic from display.

**Task 2: Problem Solving using JavaBeans**

Code :

registerTraining.jsp

|  |
| --- |
| <%--  Document : registerTraining  Created on : 16 May 2024, 1:01:07 am  Author : ARIF HAIKAL  --%>  <%@page contentType="text/html" pageEncoding="UTF-8"%>  <%@page import="lab5.com.TrainingRegister"%>  <!DOCTYPE html>  <html>  <head>  <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">  <title>Register for Training</title>  <style>  label {  display: inline-block;  margin-right: 10px;  width: 150px;  }  </style>  </head>  <body>  <h1>Register IT Training</h1>    <form action="processTraining.jsp" method="post">  <fieldset>  <legend>Training Registration</legend>  <label for="icno">IC No </label>  <input type="text" id="icno" name="icno" placeholder="E.g 124578-08-0564" required>  <br><br>  <label for="name">Name </label>  <input type="text" id="name" name="name" placeholder="Enter your name" required>  <br><br>    <label for="type">Type of Training</label>  <select id="type" name="type" required>  <option value="1">C++ training</option>  <option value="2">Java for beginner</option>  <option value="3">HTML5</option>  <option value="4">Java EEE</option>  <option value="5">Android Programming</option>  </select>  <br><br>    <label for="number">No of Pax </label>  <input type="number" id="number" name="number" placeholder="No of Pax" required>  <br><br>    <label for="student">Student</label>  <input type="radio" id="studentYes" name="student" value="1" required>  <label for="studentYes">Yes</label>  <input type="radio" id="studentNo" name="student" value="0" required>  <label for="studentNo">No</label>  <br><br>    <button type="submit">Submit</button>  <button type="reset">Cancel</button>  </fieldset>  <br>  </form>  </body>  <footer>  &copy;2024 ARIF HAIKAL  </footer>  </html> |

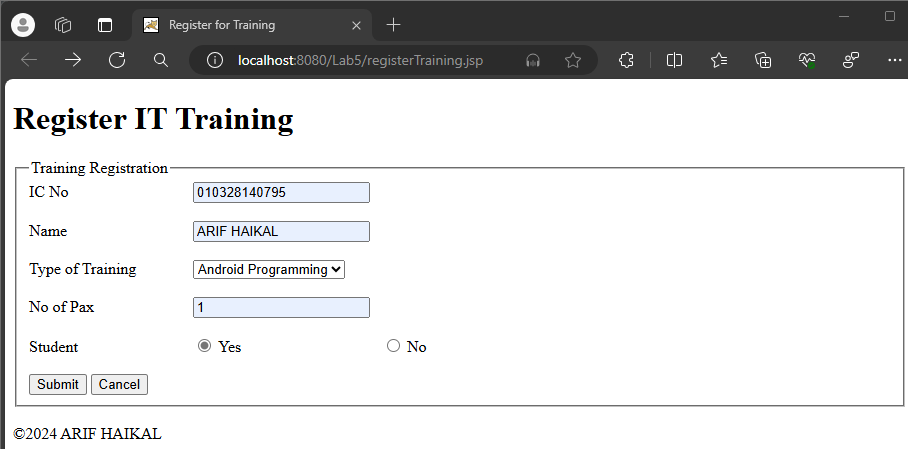
processTraining.jsp

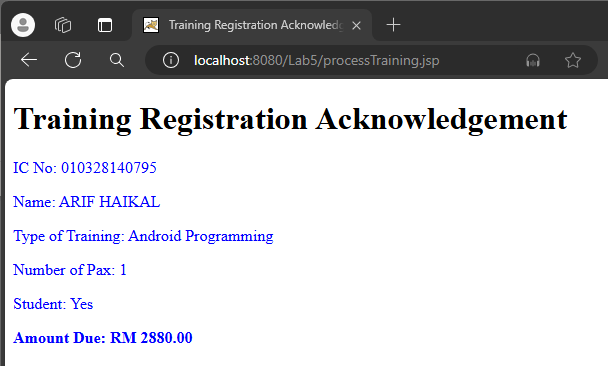
|  |
| --- |
| <%--  Document : processTraining  Created on : 16 May 2024, 1:44:14 am  Author : ARIF HAIKAL  --%>  <%@page contentType="text/html" pageEncoding="UTF-8"%>  <!DOCTYPE html>  <html>  <head>  <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">  <title>Training Registration Acknowledgement</title>  </head>  <body>  <h1>Training Registration Acknowledgement</h1>    <%  String icno = request.getParameter("icno");  String name = request.getParameter("name");  String type = request.getParameter("type");  int number = Integer.parseInt(request.getParameter("number"));  String student = request.getParameter("student");  double fee = 0.0;  // Define training fees  switch (type) {  case "1":  fee = 3000;  type = "C++ training";  break;  case "2":  fee = 3000;  type = "Java for beginner";  break;  case "3":  fee = 2800;  type = "HTML5";  break;  case "4":  fee = 5500;  type = "Java EEE";  break;  case "5":  fee = 3200;  type = "Android Programming";  break;  default:  out.println("Invalid training type.");  break;  }  // Calculate total amount  double totalAmount = fee \* number;  // Apply student discount if applicable  if (student.equals("1")) {  totalAmount \*= 0.9;  }  // Format the output amount  java.text.DecimalFormat df = new java.text.DecimalFormat("0.00");  %>    <p style="color:blue;">IC No: <%= icno %> </p>  <p style="color:blue;">Name: <%= name %> </p>  <p style="color:blue;">Type of Training: <%= type %> </p>  <p style="color:blue;">Number of Pax: <%= number %> </p>  <p style="color:blue;">Student: <%= (student.equals("1") ? "Yes" : "No") %> </p>  <p style="color:blue;"><strong>Amount Due: RM <%= df.format(totalAmount) %></strong></p>  </body>  </html> |

TrainingRegister.java

|  |
| --- |
| package lab5.com;  /\*\*  \*  \* @author ARIF HAIKAL  \*/  public class TrainingRegister {  private String icNo;  private String name;  private String trainingType;  private int numOfPax;  private boolean isStudent;  // Getters and setters  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 getTrainingType() {  return trainingType;  }  public void setTrainingType(String trainingType) {  this.trainingType = trainingType;  }  public int getNumOfPax() {  return numOfPax;  }  public void setNumOfPax(int numOfPax) {  this.numOfPax = numOfPax;  }  public boolean isStudent() {  return isStudent;  }  public void setStudent(boolean student) {  isStudent = student;  }  // Method to calculate total fee  public double calculateTotalFee() {  double fee = 0;  switch (trainingType) {  case "1": // C++ training  fee = 3000 \* numOfPax;  break;  case "2": // Java for beginner  fee = 3000 \* numOfPax;  break;  case "3": // HTML5  fee = 2800 \* numOfPax;  break;  case "4": // Java EEE  fee = 5500 \* numOfPax;  break;  case "5": // Android Programming  fee = 3200 \* numOfPax;  break;  default:  break;  }  // Apply discount for students  if (isStudent) {  fee \*= 0.9; // 10% discount  }  return fee;  }  } |

Output :





**Reflection**

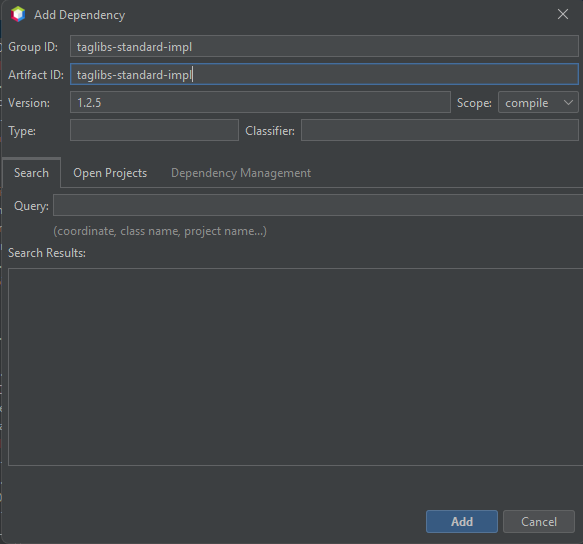
1. What you have learnt from this exercise?

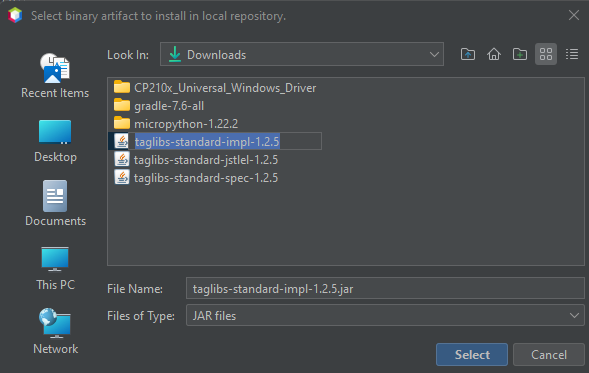
* How to show the registration detail.

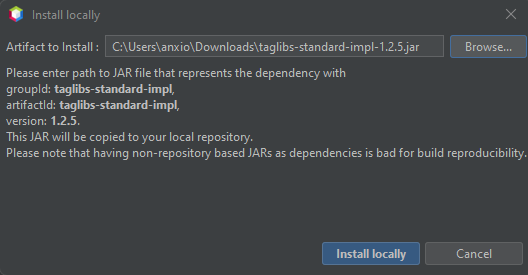
1. Describe the steps how you construct Register JavaBeans?

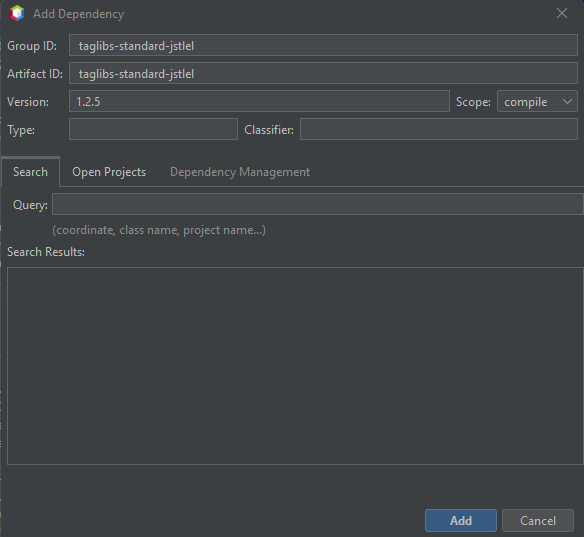
* Make a Java class having private properties, public getter and setter methods for each property, and a no-argument constructor in order to build Register JavaBeans.

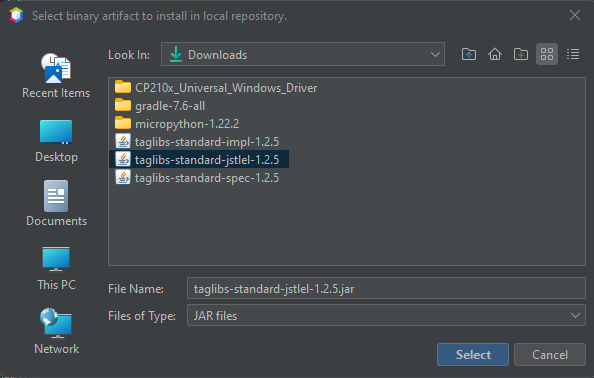
**Task 3: Installing JSTL Taglibs**

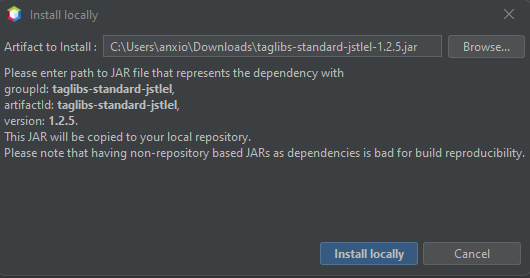


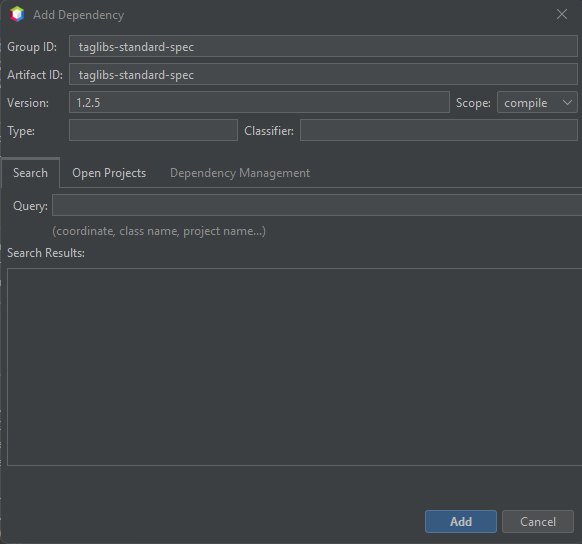


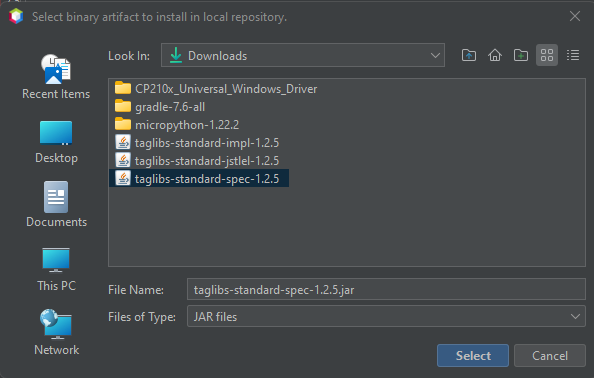


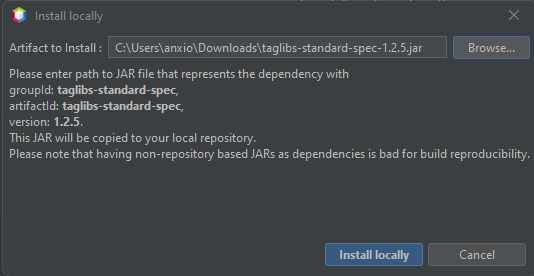














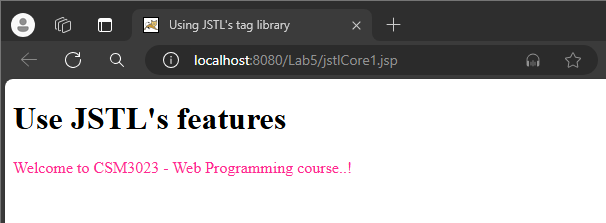
**Task 4: Using Java Standard Tag Library (JSTL)**

* **Task 1 Assign value “ W elcome to CS F3107–Web Programming courses” and display the value inside JSP page**

Code :

|  |
| --- |
| <%--  Document : jstlCore1  Created on : 15 May 2024, 11:46:59 pm  Author : ARIF HAIKAL  --%>  <%@page contentType="text/html" pageEncoding="UTF-8"%>  <%@taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c"%>  <!DOCTYPE html>  <html>  <head>  <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">  <title>Using JSTL's tag library</title>  </head>  <body>  <h1>Use JSTL's features</h1>  <c:set var="message" value="Welcome to CSM3023 - Web Programming course..!" />  <p style="color: #FF2994;"> <c:out value="${message}"/></p>  </body>  </html> |

Output :



* **Task 2-Using JSTL’s core to request information from one page and display the information**

Code :

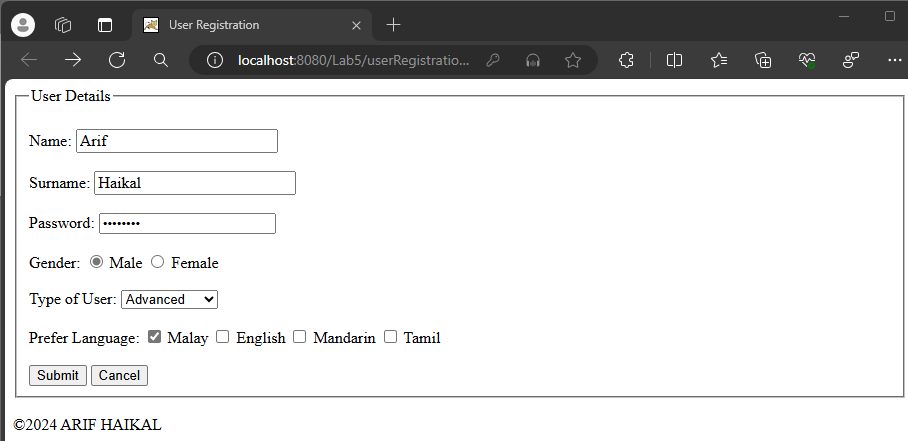
userRegistration.html

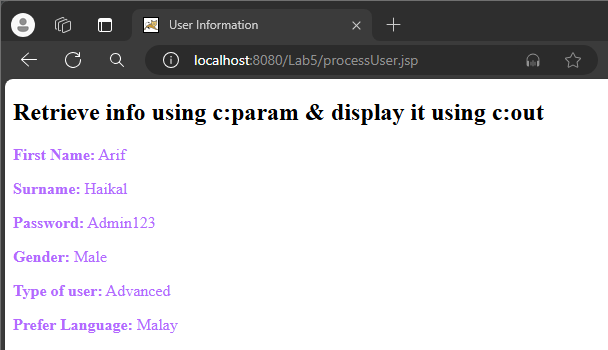
|  |
| --- |
| <!DOCTYPE html>  <!--  Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license  Click nbfs://nbhost/SystemFileSystem/Templates/JSP\_Servlet/Html.html to edit this template  -->  <html>  <head>  <title>User Registration</title>  <meta charset="UTF-8">  <meta name="viewport" content="width=device-width, initial-scale=1.0">  </head>  <body>  <form action="processUser.jsp" method="POST">    <fieldset>  <legend>User Details</legend>  <br>    <label for="name">Name:</label>  <input type="text" id="name" name="name" required><br><br>    <label for="surname">Surname:</label>  <input type="text" id="surname" name="surname" required><br><br>    <label for="password">Password:</label>  <input type="password" id="password" name="password" required><br><br>    <label for="gender">Gender:</label>  <input type="radio" id="male" name="gender" value="Male" required>  <label for="male">Male</label>  <input type="radio" id="female" name="gender" value="Female" required>  <label for="female">Female</label><br><br>    <label for="userType">Type of User:</label>  <select id="userType" name="userType">  <option value="Beginner">Beginner</option>  <option value="Intermediate">Intermediate</option>  <option value="Advanced">Advanced</option>  </select><br><br>    <label for="preferLanguage">Prefer Language:</label>  <input type="checkbox" id="malay" name="preferLanguage" value="Malay">  <label for="malay">Malay</label>  <input type="checkbox" id="english" name="preferLanguage" value="English">  <label for="english">English</label>  <input type="checkbox" id="mandarin" name="preferLanguage" value="Mandarin">  <label for="mandarin">Mandarin</label>  <input type="checkbox" id="tamil" name="preferLanguage" value="Tamil">  <label for="tamil">Tamil</label><br><br>    <input type="submit" value="Submit">  <input type="button" value="Cancel">  </fieldset>  <br>  </form>  </body>  <footer>  &copy;2024 ARIF HAIKAL  </footer>  </html> |

processUser.jsp

|  |
| --- |
| <%--  Document : processUser  Created on : 16 May 2024, 12:07:45 am  Author : ARIF HAIKAL  --%>  <%@page contentType="text/html" pageEncoding="UTF-8"%>  <!DOCTYPE html>  <html>  <head>  <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">  <title>User Information</title>  </head>  <body>  <h2>Retrieve info using c:param & display it using c:out</h2>    <%  String name = request.getParameter("name");  String surname = request.getParameter("surname");  String password = request.getParameter("password");  String gender = request.getParameter("gender");  String userType = request.getParameter("userType");  String preferLanguage = request.getParameter("preferLanguage");  %>  <p style="color: #B469FF;"><b>First Name:</b> <%= name %></p>  <p style="color: #B469FF;"><b>Surname:</b> <%= surname %></p>  <p style="color: #B469FF;"><b>Password:</b> <%= password %></p>  <p style="color: #B469FF;"><b>Gender:</b> <%= gender %></p>  <p style="color: #B469FF;"><b>Type of user:</b> <%= userType %></p>  <p style="color: #B469FF;"><b>Prefer Language:</b> <%= preferLanguage %></p>  </body>  </html> |

Output :



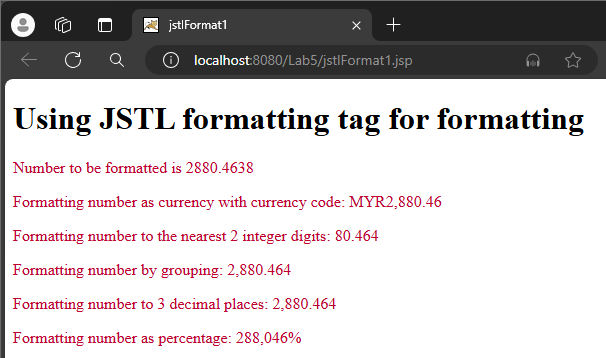


* **Task 3 - Using JSTL’s fmt to format number and currency**

Code :

|  |
| --- |
| <%--  Document : jstlFormat1  Created on : 15 May 2024, 4:43:04 pm  Author : ARIF HAIKAL  --%>  <%@ page contentType="text/html; charset=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>jstlFormat1</title>  <style>  .formatted-output {  color: #C2002D;  }  </style>  </head>  <body>  <h1>Using JSTL formatting tag for formatting</h1>    <c:set var="total" value="2880.4638"/>  <p class="formatted-output">Number to be formatted is <c:out value="${total}"/></p>  <p class="formatted-output">Formatting number as currency with currency code: <fmt:formatNumber type="currency" currencyCode="MYR" value="${total}"/></p>  <p class="formatted-output">Formatting number to the nearest 2 integer digits: <fmt:formatNumber type="number" maxIntegerDigits="2" value="${total}"/></p>  <p class="formatted-output">Formatting number by grouping: <fmt:formatNumber type="number" groupingUsed="true" value="${total}"/></p>  <p class="formatted-output">Formatting number to 3 decimal places: <fmt:formatNumber type="number" minFractionDigits="3" maxFractionDigits="3" value="${total}"/></p>  <p class="formatted-output">Formatting number as percentage: <fmt:formatNumber type="percent" value="${total}"/></p>  </body>  </html> |

Output :



**Reflection**

1. What the purpose of using JSTL’s tag library?

* JSTL's tag library is meant to make the process of creating dynamic web pages easier by offering reusable, standard tags for common tasks like data formatting, conditionals, and iteration.

1. List FIVE(5) categories of JSTL library.

* Core
* Formatting
* SQL
* XML
* Functions

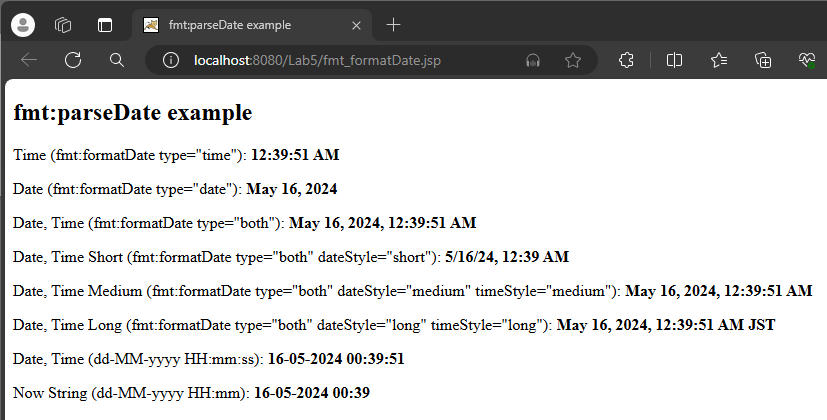
**Task 5: Using JSP Standard Tag Library**

* **Task 1 Using JSTL’s fmt to format Date**

Code :

|  |
| --- |
| <%--  Document : fmt\_formatDate  Created on : 16 May 2024, 12:35:55 am  Author : ARIF HAIKAL  --%>  <%@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>fmt:parseDate example</title>  </head>  <body>  <h2>fmt:parseDate example</h2>    <!-- Declare JSTL's taglib directives -->  <%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>  <%@ taglib uri="http://java.sun.com/jsp/jstl/fmt" prefix="fmt" %>    <c:set var="now" value="<%=new java.util.Date()%>" />  <p>  Time (fmt:formatDate type="time"):  <strong>  <fmt:formatDate type="time" value="${now}" />  </strong>  </p>  <p>  Date (fmt:formatDate type="date"):  <strong>  <fmt:formatDate type="date" value="${now}" />  </strong>  </p>  <p>  Date, Time (fmt:formatDate type="both"):  <strong>  <fmt:formatDate type="both" value="${now}" />  </strong>  </p>  <p>  Date, Time Short (fmt:formatDate type="both" dateStyle="short"):  <strong>  <fmt:formatDate type="both" dateStyle="short" timeStyle="short" value="${now}" />  </strong>  </p>  <p>  Date, Time Medium (fmt:formatDate type="both" dateStyle="medium" timeStyle="medium"):  <strong>  <fmt:formatDate type="both" dateStyle="medium" timeStyle="medium" value="${now}" />  </strong>  </p>  <p>  Date, Time Long (fmt:formatDate type="both" dateStyle="long" timeStyle="long"):  <strong>  <fmt:formatDate type="both" dateStyle="long" timeStyle="long" value="${now}" />  </strong>  </p>  <p>  Date, Time (dd-MM-yyyy HH:mm:ss):  <strong>  <fmt:formatDate pattern="dd-MM-yyyy HH:mm:ss" value="${now}" />  </strong>  </p>  <!-- Store in variable -->  <fmt:formatDate pattern="dd-MM-yyyy HH:mm" value="${now}" var="nowString"/>  <p>  Now String (dd-MM-yyyy HH:mm):  <strong>  <c:out value="${nowString}" />  </strong>  </p>  </body>  </html> |

Output :

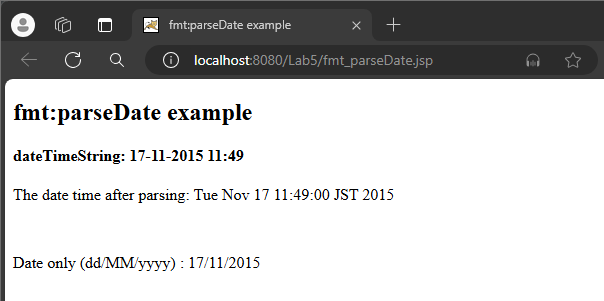


* **Task 2 - Using JSTL’s fmt to Parse Date**

Code :

|  |
| --- |
| <%--  Document : fmt\_parseDate  Created on : 16 May 2024, 12:48:41 am  Author : ARIF HAIKAL  --%>  <%@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>fmt:parseDate example</title>  </head>  <body>  <h2>fmt:parseDate example</h2>  <c:set var="dateTimeString" value="17-11-2015 11:49" />  <h4>  dateTimeString:  <c:out value="${dateTimeString}"/>  </h4>    <!-- Parsing a date time String, and store in a variable type of java-->  <fmt:parseDate value="${dateTimeString}"  type="both" var="parsedDatetime" pattern="dd-MM-yyyy HH:mm" />  <p>  The date time after parsing:  <c:out value="${parsedDatetime}" />  </p>  <br/>  <p>  Date only (dd/MM/yyyy) :  <fmt:formatDate value="${parsedDatetime}" pattern="dd/MM/yyyy"/>  </p>  </body>  </html> |

Output :



**Reflection**

1. What you have learnt from this exercise?

* To get the details time and date using JSP.

**Exercise**

* **Number 1**

Code:

circle.jsp

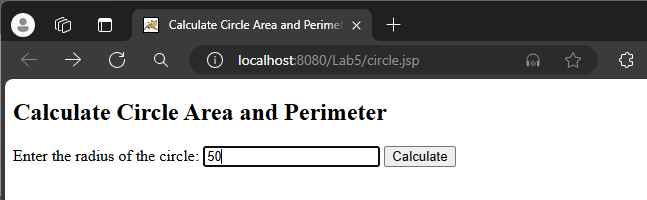
|  |
| --- |
| <%--  Document : circle  Created on : 16 May 2024, 1:27:46 am  Author : ARIF HAIKAL  --%>  <%@page contentType="text/html" pageEncoding="UTF-8"%>  <%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>  <!DOCTYPE html>  <html>  <head>  <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">  <title>Calculate Circle Area and Perimeter</title>  </head>  <body>  <h2>Calculate Circle Area and Perimeter</h2>  <form method="post" action="calculate.jsp">Enter the radius of the circle: <input type="text" name="radius">  <input type="submit" value="Calculate">  </form>  </body>  </html> |

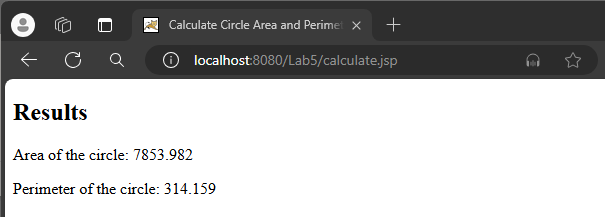
:

calculate.jsp

|  |
| --- |
| <%--  Document : calculate  Created on : 16 May 2024, 1:27:51 am  Author : ARIF HAIKAL  --%>  <%@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>Calculate Circle Area and Perimeter</title>  </head>  <body>  <h2>Results</h2>  <%-- Retrieve radius from request --%>  <c:set var="radius" value="${param.radius}" />  <%-- Calculate area and perimeter --%>  <c:set var="area" value="${3.14159265 \* radius \* radius}" />  <c:set var="perimeter" value="${2 \* 3.14159265 \* radius}" />    <p>Area of the circle: <fmt:formatNumber value="${area}" pattern="###.###"/></p>  <p>Perimeter of the circle: <fmt:formatNumber value="${perimeter}" pattern="###.###"/></p>  </body>  </html> |

Output:





* **Number 2**

Code:

brokerage.jsp

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| <%--  Document : brokerage  Created on : 16 May 2024, 1:33:30 am  Author : ARIF HAIKAL  --%>  <%@page contentType="text/html" pageEncoding="UTF-8"%>  <%@page import="lab5.com.processBrokerage"%>  <%@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>Byfixfear Trading Broker</title>  </head>  <body>  <h1>Welcome to Byfixfear Trading Broker!</h1>  <%  int shares = 800;  double price = 10.50;  //instantiate broker object  processBrokerage broker = new processBrokerage(shares, price);  %>    <c:set var="amount" value="<%=broker.getAmountB(shares, price)%>" />  <c:set var="commission" value="<%=broker.getCommission(shares, price)%>" />  <c:set var="total" value="<%=broker.getAmountA(shares, price)%>" />    <p>Amount (without commission): RM <fmt:formatNumber type="number" minFractionDigits="2" value="${amount}" /></p>  <p>Commission charged: RM <fmt:formatNumber type="number" minFractionDigits="2" value="${commission}" /></p>  <p>Total amount paid (commission included): RM <fmt:formatNumber type="number" minFractionDigits="2" value="${total}" /></p>  </body>  </html> |

processBrokerage.java

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| /\*  \* Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license  \* Click nbfs://nbhost/SystemFileSystem/Templates/Other/File.java to edit this template  \*/  package lab5.com;  /\*\*  \*  \* @author ARIF HAIKAL  \*/  public class processBrokerage {  private int shares;  private double price;  public processBrokerage() {  }  public processBrokerage(int shares, double price) {  this.shares = shares;  this.price = price;  }  public int getShares() {  return shares;  }  public void setShares(int shares) {  this.shares = shares;  }  public double getPrice() {  return price;  }  public void setPrice(double price) {  this.price = price;  }    public double getAmountB(int shares, double price){  double amountB = shares \* price;  return amountB;  }  public double getCommission(int shares, double price){  double commission;  commission = shares \* price \* 0.05;  return commission;  }    public double getAmountA(int shares, double price){  double amountA = shares \* price;  double commission = shares \* price \* 0.05;  return amountA + commission;  }  } |

Output:

