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Lab Assessment 4

B.Tech in Computer Science and Engineering **(CSE)**, **Winter** Semester **2020-21**

Name:	Swaranjana Nayak
Registration Number:	19BCE0977
Slot:	L43+L44
Date:	20/05/2021

1. Write a program to demonstrate the knowledge of students in JSP.
Eg: Client sends username and password to JSP on the Server. Server receives, validates and sends back the validation result to client as response.

Source code:

index.html

```
<!DOCTYPE html>
<html>
    <head>
        <title>Start Page</title>
          <meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
    </head>
    <body>
        <form action="login.jsp" name="up" method="post">
                                Username:  <input  type="text"
placeholder="username" name="username">
            <br>
                            Password:  <input  type="password"
placeholder="password" name="password">
            <br>
            <input type="submit" value="Submit">
        </form>
        <br>
        <!--<a href="quiz.jsp">Question 2</a>-->
    </body>
</html>
```

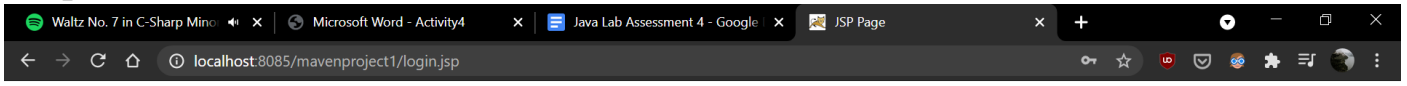
login.jsp

```
<%--
    Document   : login
    Created on : 17-May-2021, 7:30:12 PM
    Author     : sn
--%>

<%@page import="java.sql.DriverManager"%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
          <meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
```

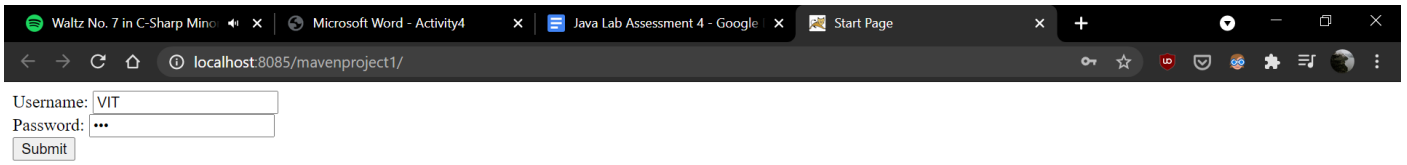
```
        <title>JSP Page</title>
    </head>
    <body>
        <%@ page import ="java.sql.*" %>

        <%

        String JDBC_DRIVER = "com.mysql.jdbc.Driver";
        String DB_URL = "jdbc:mysql://localhost:3306/test";
        String USER = "root";
        String PASS = "sn2606";
        Class.forName("com.mysql.jdbc.Driver");
        System.out.println("Connecting to database...");
                              java.sql.Connection    conn    =
DriverManager.getConnection(DB_URL, USER, PASS);
        Statement st = conn.createStatement();
             ResultSet  rs  =  st.executeQuery("select  *  from
login");

        String un = request.getParameter("username");
        String pass = request.getParameter("password");
        int flag = 0;

//        out.println(un);
//        out.println(pass);

        while(rs.next()){
//           out.println(rs.getString("username"));
                  if(rs.getString("username").equals(un)  &&
rs.getString("password").equals(pass)){
               out.println("<h1>Access Allowed!</h1>");
               flag = 1;
               break;
           }
        }

        if(flag == 0){
            out.println("<h1>Access Denied!</h1>");
        }

        %>
```

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

Output:

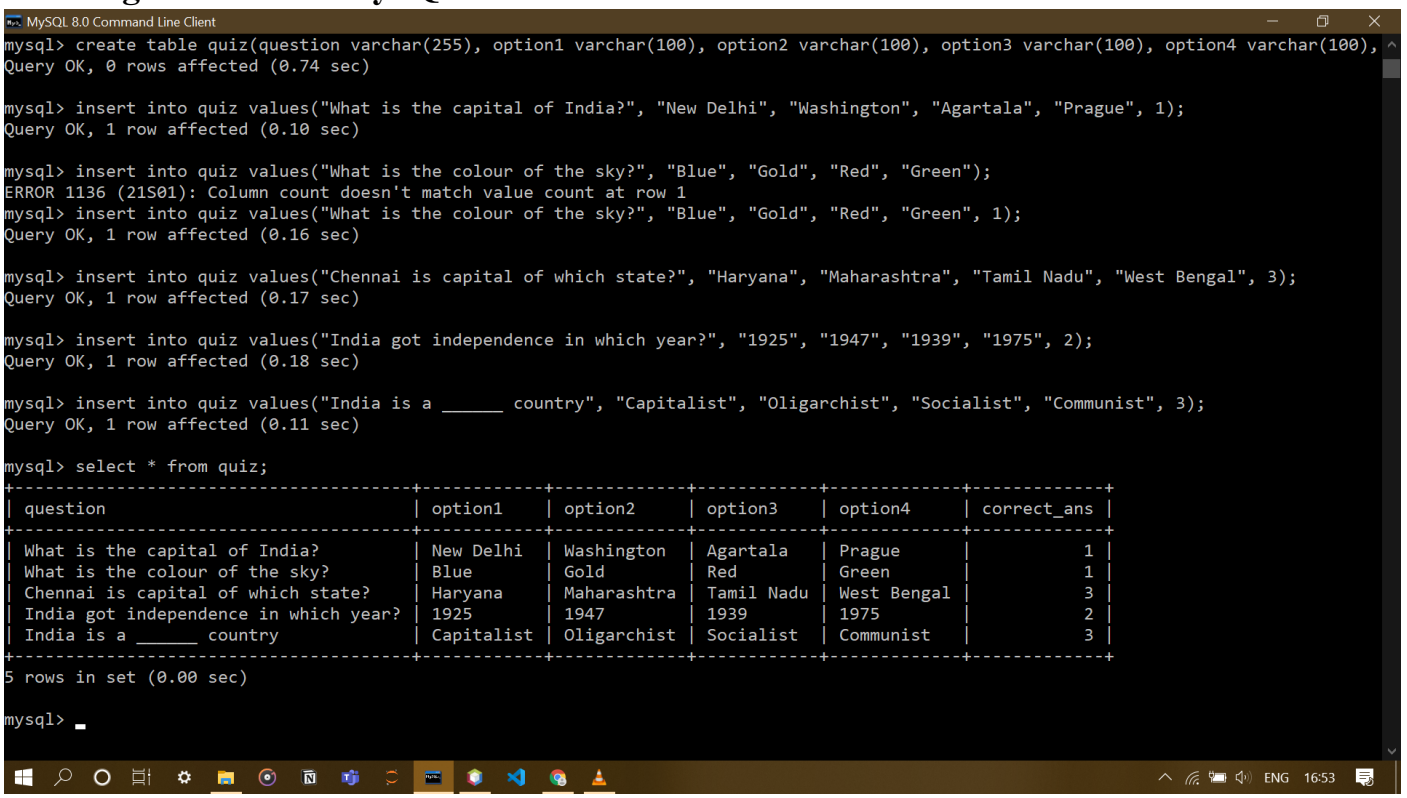


Access Allowed!



2. Write a program to demonstrate the knowledge of students in JSP.
Eg: Create a JSP page for an online multiple choice test. The questions are randomly selected from a database and displayed on the screen. The choices are displayed using radio buttons. When the user clicks on next, the next question is displayed. When the user clicks on submit, display the total score on the screen

Creating the table in MySQL:-



```
MySQL 8.0 Command Line Client
mysql> create table quiz(question varchar(255), option1 varchar(100), option2 varchar(100), option3 varchar(100), option4 varchar(100),
Query OK, 0 rows affected (0.74 sec)

mysql> insert into quiz values("What is the capital of India?", "New Delhi", "Washington", "Agartala", "Prague", 1);
Query OK, 1 row affected (0.10 sec)

mysql> insert into quiz values("What is the colour of the sky?", "Blue", "Gold", "Red", "Green");
ERROR 1136 (21S01): Column count doesn't match value count at row 1
mysql> insert into quiz values("What is the colour of the sky?", "Blue", "Gold", "Red", "Green", 1);
Query OK, 1 row affected (0.16 sec)

mysql> insert into quiz values("Chennai is capital of which state?", "Haryana", "Maharashtra", "Tamil Nadu", "West Bengal", 3);
Query OK, 1 row affected (0.17 sec)

mysql> insert into quiz values("India got independence in which year?", "1925", "1947", "1939", "1975", 2);
Query OK, 1 row affected (0.18 sec)

mysql> insert into quiz values("India is a _____ country", "Capitalist", "Oligarchist", "Socialist", "Communist", 3);
Query OK, 1 row affected (0.11 sec)

mysql> select * from quiz;
+-------------------------------------+------------+-------------+------------+-------------+-------------+
| question                            | option1    | option2     | option3    | option4     | correct_ans |
+-------------------------------------+------------+-------------+------------+-------------+-------------+
| What is the capital of India?       | New Delhi  | Washington  | Agartala   | Prague      |           1 |
| What is the colour of the sky?      | Blue       | Gold        | Red        | Green       |           1 |
| Chennai is capital of which state?  | Haryana    | Maharashtra | Tamil Nadu | West Bengal |           3 |
| India got independence in which year? | 1925     | 1947        | 1939       | 1975        |           2 |
| India is a _____ country            | Capitalist | Oligarchist | Socialist  | Communist   |           3 |
+-------------------------------------+------------+-------------+------------+-------------+-------------+
5 rows in set (0.00 sec)

mysql>
```

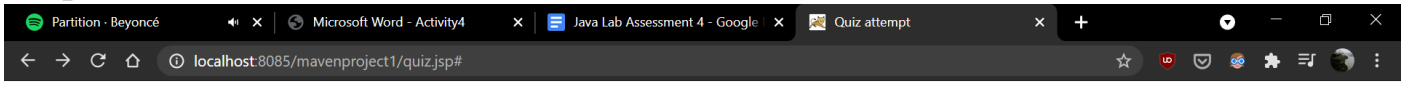
Source code:

```
<%--
    Document   : quiz
    Created on : 17-May-2021, 10:07:53 PM
    Author     : sn
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
                    <meta   http-equiv="Content-Type"   content="text/html;
charset=UTF-8">
        <title>Quiz attempt</title>
    </head>
    <body>
        <%@ page import ="java.sql.*,java.util.*,java.lang.Math" %>
```

```
        <%!
            static int qno = -1, count = 0;
                            static  ArrayList<String>  questions  =  new
ArrayList<String>();
            static ArrayList<String> option1 = new ArrayList<String>();
            static ArrayList<String> option2 = new ArrayList<String>();
            static ArrayList<String> option3 = new ArrayList<String>();
            static ArrayList<String> option4 = new ArrayList<String>();
                           static  ArrayList<Integer>  correctAns  =  new
ArrayList<Integer>();
                            static  ArrayList<Integer>  givenAns  =  new
ArrayList<Integer>();
        %>
        <%
            // Get questions from database and store them
            if(qno == -1){
                String JDBC_DRIVER = "com.mysql.jdbc.Driver";
                String DB_URL = "jdbc:mysql://localhost:3306/test";
                String USER = "root";
                String PASS = "sn2606";
                Class.forName(JDBC_DRIVER);
                System.out.println("Connecting to database...");
                                          java.sql.Connection   conn   =
DriverManager.getConnection(DB_URL, USER, PASS);
                Statement st = conn.createStatement();
                ResultSet rs = st.executeQuery("select * from quiz");

                while(rs.next()){
                    questions.add(rs.getString("question"));
                    option1.add(rs.getString("option1"));
                    option2.add(rs.getString("option2"));
                    option3.add(rs.getString("option3"));
                    option4.add(rs.getString("option4"));
                    correctAns.add(rs.getInt("correct_ans"));
                    givenAns.add(0);
                }
            }else{
                String op = (String)request.getParameter("options");
                if("1".equals(op)){
                    givenAns.set(qno, 1);
                }else if("2".equals(op)){
                    givenAns.set(qno, 2);
                }else if("3".equals(op)){
                    givenAns.set(qno, 3);
                }else if("4".equals(op)){
                    givenAns.set(qno, 4);
                }
            }
```

```
        %>

        <%
            if(count >= questions.size()){
                int score = 0;
                for(int i = 0; i < correctAns.size(); i++){
                    if(correctAns.get(i) == givenAns.get(i)){
                        score++;
                    }
                }
                       out.print("<h1>Your score is " + score + "/" +
correctAns.size() + ".</h1>");
            }else{
                qno = qno == -1 ? (int)(Math.random()*(questions.size()))
: (qno + 1)%questions.size();
               count++;

        %>
        <form action="#" method="post">
            <h3><% out.print(questions.get(qno));  %></h3>
            <input type="radio" id="1" name="options" value="1">
            <label for="1"><% out.print(option1.get(qno));  %></label>
            <br>
            <input type="radio" id="2" name="options" value="2">
            <label for="2"><% out.print(option2.get(qno));  %></label>
            <br>
            <input type="radio" id="3" name="options" value="3">
            <label for="3"><% out.print(option3.get(qno));  %></label>
            <br>
            <input type="radio" id="4" name="options" value="4">
            <label for="4"><% out.print(option4.get(qno));  %></label>
            <br>
            <input type="submit" value="Next">
        </form>
        <%
            }

        %>

    </body>
</html>
```

Output:



Chennai is capital of which state?

- Haryana
- Maharashtra
- Tamil Nadu
- West Bengal

Next

Your score is 3/5.

3. Write a program to demonstrate the knowledge of students in Servlet programming. Eg., Write a servlet which counts how many times a user has visited a web page. If the user is visiting the page for the first time, display a welcome message. If the user is re-visiting the page, display the number of times visited. (Use cookies)

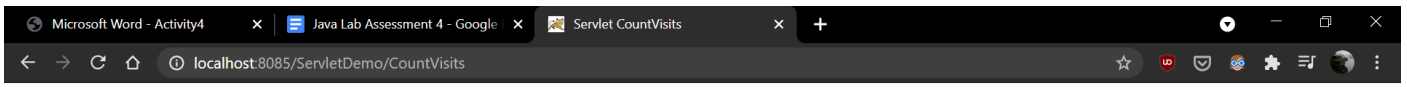
Source Code:

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */

import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.Cookie;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

/**
 *
 * @author sn
 */
@WebServlet(urlPatterns = {"/CountVisits"})
public class CountVisits extends HttpServlet {

    /**
     * Processes requests for both HTTP <code>GET</code> and <code>POST</code>
     * methods.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */

    static int hits = 1;

    protected void processRequest(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
```

```
        try (PrintWriter out = response.getWriter()) {
             /* TODO output your page here. You may use following sample
code. */

            String ck = String.valueOf(hits);
            Cookie c = new Cookie("visit", ck);

            response.addCookie(c);
            int j = Integer.parseInt(c.getValue());
            if(j == 1) {
                out.println("Welcome");
            }
            else {
                out.println("<h1>You visited " + hits + " times</h1>");
            }

            hits++;

            out.println("<!DOCTYPE html>");
            out.println("<html>");
            out.println("<head>");
            out.println("<title>Servlet CountVisits</title>");
            out.println("</head>");
            out.println("<body>");
                        out.println("<h4>Servlet  CountVisits  at  "  +
request.getContextPath() + "</h4>");
            out.println("</body>");
            out.println("</html>");
        }
    }

     // <editor-fold defaultstate="collapsed" desc="HttpServlet methods.
Click on the + sign on the left to edit the code.">
    /**
     * Handles the HTTP <code>GET</code> method.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */
    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse
response)
            throws ServletException, IOException {
        processRequest(request, response);
    }
```

```
    /**
     * Handles the HTTP <code>POST</code> method.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */
    @Override
                protected    void    doPost(HttpServletRequest    request,
HttpServletResponse response)
            throws ServletException, IOException {
        processRequest(request, response);
    }

    /**
     * Returns a short description of the servlet.
     *
     * @return a String containing servlet description
     */
    @Override
    public String getServletInfo() {
        return "Short description";
    }// </editor-fold>

}
```

Output:



You visited 4 times

Servlet CountVisits at /ServletDemo

4. Write a program to demonstrate the knowledge of students in handling HTTP Request and Response.
Eg: Write a program to create a shopping mall. Users must be allowed to purchase from two pages. Each page should have a page total. The third page should display a bill, which consists of a page total of whatever the purchase has been done and print the total. (Use HttpSession)

Source code:

ShoppingMall1.java

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */

import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
```

```
/**
 *
 * @author sn
 */
@WebServlet(urlPatterns = {"/ShoppingMall1"})
public class ShoppingMall1 extends HttpServlet {

    /**
          *  Processes  requests  for  both  HTTP  <code>GET</code>  and
<code>POST</code>
     * methods.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */
          protected  void  processRequest(HttpServletRequest  request,
HttpServletResponse response)
            throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        try (PrintWriter out = response.getWriter()) {
             /* TODO output your page here. You may use following sample
code. */

            HttpSession session=request.getSession();
            session.setAttribute("Total", 0);


            out.println("<!DOCTYPE html>");
            out.println("<html>");
            out.println("<head>");
            out.println("<title>Shopping Mall Page1</title>");
            out.println("</head>");
            out.println("<body>");
            out.println("<h1>Welcome to shopping mall.</h1>");
                            out.println("<form  action=\"ShoppingMall2\"
method=\"post\">");
            out.println("<h4>Bread</h4>");
            out.println("<select name=\"bread\">" +
                        "<option value=\"yes\">Yes</option>" +
                        "<option value=\"no\">No</option>" +
                        "</select>");
            out.println("<h4>Ketchup</h4>");
            out.println("<select name=\"ketchup\">" +
                        "<option value=\"yes\">Yes</option>" +
                        "<option value=\"no\">No</option>" +
                        "</select>");
```

```
            out.println("<h4>Mushrooms</h4>");
            out.println("<select name=\"mushroom\">" +
                        "<option value=\"yes\">Yes</option>" +
                        "<option value=\"no\">No</option>" +
                        "</select>");
            out.println("<h4>Cake</h4>");
            out.println("<select name=\"cake\">" +
                        "<option value=\"yes\">Yes</option>" +
                        "<option value=\"no\">No</option>" +
                        "</select>");
            out.println("<br>");
            out.println("<br>");
            out.println("<br>");
            out.println("<input type=\"submit\" value=\"Submit\">");
            out.println("</form>");
            out.println("</body>");
            out.println("</html>");
        }
    }

     // <editor-fold defaultstate="collapsed" desc="HttpServlet methods.
Click on the + sign on the left to edit the code.">
    /**
     * Handles the HTTP <code>GET</code> method.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */
    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse
response)
            throws ServletException, IOException {
        processRequest(request, response);
    }

    /**
     * Handles the HTTP <code>POST</code> method.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */
    @Override
            protected    void    doPost(HttpServletRequest    request,
HttpServletResponse response)
```

```
            throws ServletException, IOException {
        processRequest(request, response);
    }

    /**
     * Returns a short description of the servlet.
     *
     * @return a String containing servlet description
     */
    @Override
    public String getServletInfo() {
        return "Short description";
    }// </editor-fold>

}
```

ShoppingMall2.java

```
/*
  * To change this license header, choose License Headers in Project
Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */

import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;

/**
 *
 * @author sn
 */
@WebServlet(urlPatterns = {"/ShoppingMall2"})
public class ShoppingMall2 extends HttpServlet {

    /**
          *  Processes  requests  for  both  HTTP  <code>GET</code>  and
```

```
<code>POST</code>
     * methods.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */
          protected void processRequest(HttpServletRequest request,
HttpServletResponse response)
            throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        try (PrintWriter out = response.getWriter()) {
             /* TODO output your page here. You may use following sample
code. */

            String bread = request.getParameter("bread");
            int price = 0;
            if(bread.equals("yes")) {
                price += 30;
            }

            String ketchup = request.getParameter("ketchup");
            if(ketchup.equals("yes")) {
                price += 40;
            }

            String mushroom = request.getParameter("mushroom");
            if(mushroom.equals("yes")) {
                price += 80;
            }

            String cake = request.getParameter("cake");
            if(cake.equals("yes")) {
                price += 100;
            }

            HttpSession session = request.getSession(false);
            session.setAttribute("Total", price);

            out.println("<!DOCTYPE html>");
            out.println("<html>");
            out.println("<head>");
            out.println("<title>Shopping Mall Page1</title>");
            out.println("</head>");
            out.println("<body>");
            out.println("<h1>Welcome to shopping mall pt.2</h1>");
            out.println("<form action=\"Billing\" method=\"post\">");
```

```
            out.println("<h4>Icecream</h4>");
            out.println("<select name=\"icecream\">" +
                        "<option value=\"yes\">Yes</option>" +
                        "<option value=\"no\">No</option>" +
                        "</select>");
            out.println("<h4>Coffee</h4>");
            out.println("<select name=\"coffee\">" +
                        "<option value=\"yes\">Yes</option>" +
                        "<option value=\"no\">No</option>" +
                        "</select>");
            out.println("<h4>Tea</h4>");
            out.println("<select name=\"tea\">" +
                        "<option value=\"yes\">Yes</option>" +
                        "<option value=\"no\">No</option>" +
                        "</select>");
            out.println("<h4>Chips</h4>");
            out.println("<select name=\"chips\">" +
                        "<option value=\"yes\">Yes</option>" +
                        "<option value=\"no\">No</option>" +
                        "</select>");
            out.println("<br>");
            out.println("<br>");
            out.println("<br>");
            out.println("<input type=\"submit\" value=\"Submit\">");
            out.println("</form>");
            out.println("</body>");
            out.println("</html>");
        }
    }

     // <editor-fold defaultstate="collapsed" desc="HttpServlet methods.
Click on the + sign on the left to edit the code.">
    /**
     * Handles the HTTP <code>GET</code> method.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */
    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse
response)
            throws ServletException, IOException {
        processRequest(request, response);
    }

    /**
```

```
     * Handles the HTTP <code>POST</code> method.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */
    @Override
                protected    void    doPost(HttpServletRequest    request,
HttpServletResponse response)
            throws ServletException, IOException {
        processRequest(request, response);
    }

    /**
     * Returns a short description of the servlet.
     *
     * @return a String containing servlet description
     */
    @Override
    public String getServletInfo() {
        return "Short description";
    }// </editor-fold>

}
```

Billing.java

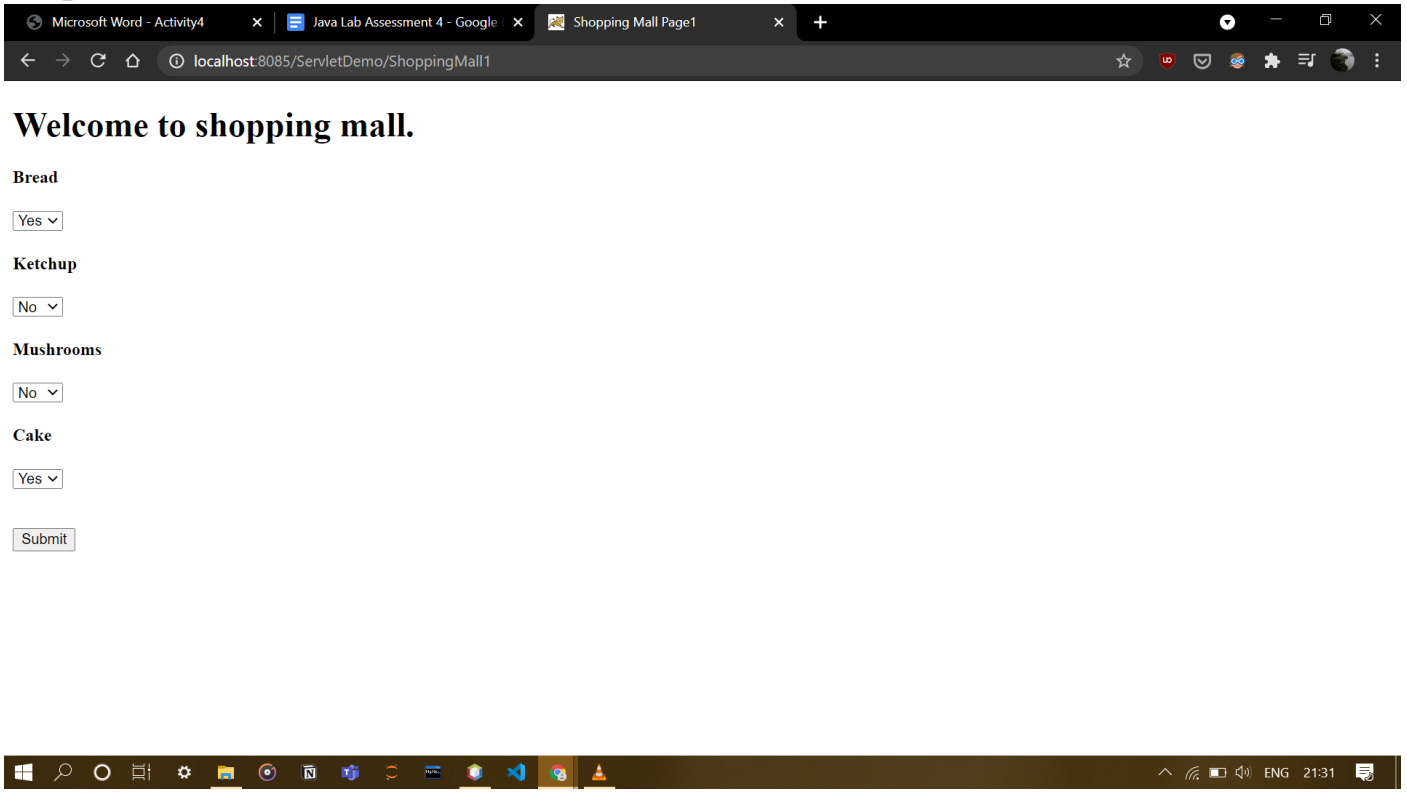
```
/*
 * To change this license header, choose License Headers in Project
Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */

import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;

/**
 *
 * @author sn
 */
```

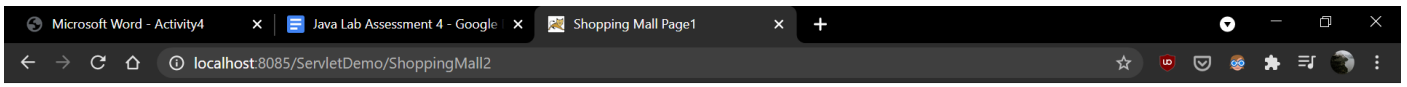
```
@WebServlet(urlPatterns = {"/Billing"})
public class Billing extends HttpServlet {

    /**
          * Processes requests for both HTTP <code>GET</code> and
<code>POST</code>
     * methods.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */
          protected void processRequest(HttpServletRequest request,
HttpServletResponse response)
            throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        try (PrintWriter out = response.getWriter()) {

            String icecream = request.getParameter("icecream");
            int price = 0;
            if(icecream.equals("yes")) {
                price += 30;
            }

            String coffee = request.getParameter("coffee");
            if(coffee.equals("yes")) {
                price += 50;
            }

            String tea = request.getParameter("tea");
            if(tea.equals("yes")) {
                price += 50;
            }

            String chips = request.getParameter("chips");
            if(chips.equals("yes")) {
                price += 20;
            }

            HttpSession session = request.getSession(false);
            int t = (int)session.getAttribute("Total");
            session.setAttribute("Total", price+t);


             /* TODO output your page here. You may use following sample
code. */
            out.println("<!DOCTYPE html>");
```

```
            out.println("<html>");
            out.println("<head>");
            out.println("<title>Final bill</title>");
            out.println("</head>");
            out.println("<body>");
                                out.println("<h1>Your  bill  is:  Rs."  +
session.getAttribute("Total") + "</h1>");
            out.println("</body>");
            out.println("</html>");
        }
    }

     // <editor-fold defaultstate="collapsed" desc="HttpServlet methods.
Click on the + sign on the left to edit the code.">
    /**
     * Handles the HTTP <code>GET</code> method.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */
    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse
response)
            throws ServletException, IOException {
        processRequest(request, response);
    }

    /**
     * Handles the HTTP <code>POST</code> method.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */
    @Override
               protected    void    doPost(HttpServletRequest    request,
HttpServletResponse response)
            throws ServletException, IOException {
        processRequest(request, response);
    }

    /**
     * Returns a short description of the servlet.
     *
     * @return a String containing servlet description
```

```
     */
    @Override
    public String getServletInfo() {
        return "Short description";
    }// </editor-fold>

}
```

Output:





Welcome to shopping mall pt.2

Icecream

Yes

Coffee

Yes

Tea

No

Chips

No

Submit

Your bill is: Rs.210