**INTERNATIONAL UNIVERSITY**

VIETNAM NATIONAL UNIVERSITY HCMC

**School of Computer Science & Engineer**

**Report Lab 4**

Course: WEB APPLICATION DEVELOPMENT

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Lab Instructor: Vo Duc Khoi, MSc

Group: ITIT22IU01

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ID: ITITIU21135

**Lab 4: Web Session using Cookie**

**Exercise 1:**

SimpleCookies.java – Servlet class conquers the whole process.

My code:

/\*

\* Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license

\* Click nbfs://nbhost/SystemFileSystem/Templates/JSP\_Servlet/Servlet.java to edit this template

\*/

import jakarta.servlet.ServletException;

import jakarta.servlet.annotation.WebServlet;

import jakarta.servlet.http.Cookie;

import jakarta.servlet.http.HttpServlet;

import jakarta.servlet.http.HttpServletRequest;

import jakarta.servlet.http.HttpServletResponse;

import java.io.IOException;

import java.io.PrintWriter;

/\*\*

\*

\* @author thanhphatchau

\*/

@WebServlet(urlPatterns = {"/SimpleCookies"})

public class SimpleCookies 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");

PrintWriter out = response.getWriter();

Cookie cookie = new Cookie("thanhphatchau","ititiu21135");

response.addCookie(cookie);

cookie.setPath("/SimpleCookies");

cookie.setDomain("http://localhost:8080/lab4/SimpleCookies?");

cookie.setMaxAge(3600);

try {

/\* TODO output your page here. You may use following sample code. \*/

out.println("<!DOCTYPE html>");

out.println("<html>");

out.println("<head>");

out.println("<title>Servlet SimpleCookies</title>");

out.println("</head>");

out.println("<body>");

out.println("<h1>This is cookie example</h1>");

out.println("<table border = 1><tr><td>Name:</td>");

out.println("<td>"+cookie.getName()+"</td></tr>");

out.println("<tr><td>Value:</td><td>"+cookie.getValue()+"</td></tr>");

out.println("<tr><td>Path:</td><td>"+cookie.getPath()+"</td></tr>");

out.println("<tr><td>Domain:</td><td>"+cookie.getDomain()+"</td></tr>");

out.println("</body>");

out.println("</html>");

}finally{

out.close();

}

}

// <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>

}

Implementation on server:

When I run the project, file index.jsp would appear to let user interact with the web page. Click on button “Submit” to execute the inner code of servlet.

A screenshot of a computer

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All the provided information about my lastest created cookie is on the table.

A screenshot of a computer

Description automatically generated

Exercise 2:

Index.jsp – This file helps me create form to execute my servlet class.

My code:

<%--

Document : index

Created on : Apr 18, 2024, 10:55:12 PM

Author : thanhphatchau

--%>

<%@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>

<h1>Print out the cookies</h1>

<hr><!-- comment -->

<form action="./CookieExample">

<table>

<tr>

<td>Input Cookie Name:</td>

<td><input type="text" name="cname"></td>

</tr>

<tr>

<td>Input Cookie Value:</td>

<td><input type="text" name="cvalue"></td>

</tr>

<tr>

<td><input type="submit"></td>

</tr>

</table>

</form>

</body>

</html>

CookieExample.java – servlet class helps me execute code.

My code:

/\*

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\* Click nbfs://nbhost/SystemFileSystem/Templates/JSP\_Servlet/Servlet.java to edit this template

\*/

import jakarta.servlet.ServletException;

import jakarta.servlet.annotation.WebServlet;

import jakarta.servlet.http.Cookie;

import jakarta.servlet.http.HttpServlet;

import jakarta.servlet.http.HttpServletRequest;

import jakarta.servlet.http.HttpServletResponse;

import java.io.IOException;

import java.io.PrintWriter;

/\*\*

\*

\* @author thanhphatchau

\*/

@WebServlet(urlPatterns = {"/CookieExample"})

public class CookieExample 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()) {

/\*print out cookies \*/

out.println("Print out the cookies:");

out.println("<table border = 1><tr><td>Name:</td><td>Content</td><tr>");

Cookie[] cookies = request.getCookies();

for(int i = 0; i < cookies.length; i++){

Cookie c = cookies[i];

String name = c.getName();

String value = c.getValue();

out.print("<tr><td>"+ name + "</td><td>"+value+"</td></tr>");

}

out.println("</table><br><hr>");

/\*set new cookie\*/

String name = request.getParameter("cname");

if (name != null && name.length() >0){

String value = request.getParameter("cvalue");

Cookie c = new Cookie(name,value);

response.addCookie(c);

out.println("Set the cookies:");

out.println("Name: " + c.getName());

out.println("Value:" + c.getValue());

}

}

}

// <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>

}

Implementation:

* When I run the project, a form is created. My mission now is providing cookie name and value in the input section. A screenshot of a computer

  Description automatically generated
* Then, I click on Submit button to execute servlet class. All my cookies will be shown up in the table included the last created one.A screenshot of a computer

  Description automatically generated

Exercise 3:

RepeatVisitor.java - servlet class.

My code:

/\*

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\* Click nbfs://nbhost/SystemFileSystem/Templates/JSP\_Servlet/Servlet.java to edit this template

\*/

import jakarta.servlet.ServletException;

import jakarta.servlet.annotation.WebServlet;

import jakarta.servlet.http.Cookie;

import jakarta.servlet.http.HttpServlet;

import jakarta.servlet.http.HttpServletRequest;

import jakarta.servlet.http.HttpServletResponse;

import java.io.IOException;

import java.io.PrintWriter;

/\*\*

\*

\* @author thanhphatchau

\*/

@WebServlet(urlPatterns = {"/RepeatVisitor"})

public class RepeatVisitor 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 {

boolean newbie = true;

Cookie[] cookies = request.getCookies();

if(cookies != null){

for(int i = 0; i< cookies.length; i++){

Cookie c = cookies[i];

if((c.getName().equals("repeatVisitor"))&&(c.getValue().equals("yes"))){

newbie = false;

break;

}

}

} /\* end of if\*/

int counter = 0;

String title;

if (newbie){

Cookie returnVisitorCookie = new Cookie("repeatVisitor", "yes");

returnVisitorCookie.setMaxAge(60\*60\*24\*365);

response.addCookie(returnVisitorCookie);

title = "Welcome Abroad";

} else {

title = "Welcome Back";

counter+=1;

}

response.setContentType("text/html;charset=UTF-8");

String docType="<<!DOCTYPE HTML PUBLIC \\\"-//W3C//DTD HTML 4.0"+"Transitional//EN\\\">\\n";

try (PrintWriter out = response.getWriter()) {

out.println(docType +

"<HTML>\n" +

"<HEAD><TITLE>" + title + "</TITLE></HEAD>\n" +

"<BODY BGCOLOR=\"#FDF5E6\">" +

"<H1 ALIGN=\"CENTER\">" + title + "</H1>\n<p ALIGN=\"CENTER\"> Counter:"+counter +

"</BODY></HTML>");

/\* TODO output your page here. You may use following sample code.

out.println("<!DOCTYPE html>");

out.println("<html>");

out.println("<head>");

out.println("<title>Servlet RepeatVisitor</title>");

out.println("</head>");

out.println("<body>");

out.println("<h1>Servlet RepeatVisitor at " + request.getContextPath() + "</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";

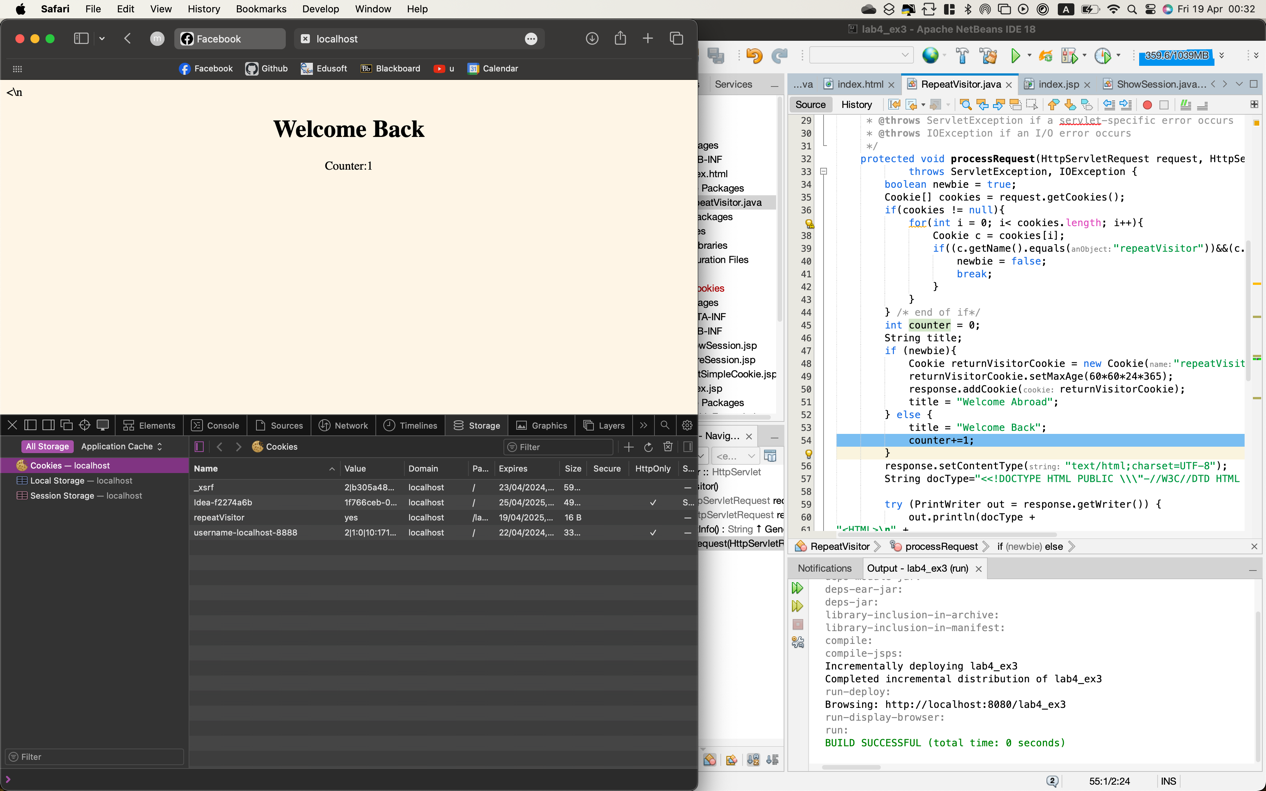
}// </editor-fold>

}

Output:

* When I run the project, a page included submit button to start the execution of servlet will be shown up. In the cookies section, there are still not any new cookies is added.A screenshot of a computer

  Description automatically generated
* When I click on Submit button, a new cookie is added as tracking my first time visiting the page.A screenshot of a computer

  Description automatically generated
* Then, I refresh the page. The counter add up to 1 to track that I have already visited this page before. Title on the page also change to welcome me back to the page.

Exercise 4:

ShowSession.java – servlet java class.

My code:

/\*

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\* Click nbfs://nbhost/SystemFileSystem/Templates/JSP\_Servlet/Servlet.java to edit this template

\*/

import jakarta.servlet.ServletException;

import jakarta.servlet.annotation.WebServlet;

import jakarta.servlet.http.HttpServlet;

import jakarta.servlet.http.HttpServletRequest;

import jakarta.servlet.http.HttpServletResponse;

import jakarta.servlet.http.HttpSession;

import java.io.IOException;

import java.io.PrintWriter;

/\*\*

\*

\* @author thanhphatchau

\*/

@WebServlet(urlPatterns = {"/ShowSession"})

public class ShowSession 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");

HttpSession session = request.getSession();

String heading;

Integer accessCount = (Integer)session.getAttribute("accessCount");

if (accessCount == null){

accessCount = new Integer(0);

heading = "Welcome, Newcomer";

} else {

heading = "Welcome back";

accessCount = new Integer(accessCount.intValue()+1);

}

session.setAttribute("accessCount",accessCount);

String title ="Session Tracking Example";

String doctype= "<!DOCTYPE HTML PUBLIC \\\"-//W3C//DTD HTML 4.0" + "Transitional//EN\\\">";

try (PrintWriter out = response.getWriter()) {

/\* TODO output your page here. You may use following sample code. \*/

out.println(doctype+

"<html>"+

"<HEAD><TITLE>" + title + "</TITLE></HEAD>\n" +

"<BODY BGCOLOR=\"#FDF5E6\">\n" +

"<CENTER>\n" +

"<H1>" + heading + "</H1>\n" +

"<H2>Information on Your Session:</H2>\n" +

"<TABLE BORDER=1>\n" +

"<TR BGCOLOR=\"#FFAD00\">\n" +

" <TH>Info Type<TH>Value\n" +

"<TR>\n" +

" <TD>ID\n" +

" <TD>" + session.getId() + "\n" +

"<TR>\n" +

" <TD>Creation Time\n" +

" <TD>" +

session.getCreationTime() + "\n" +

"<TR>\n" +

" <TD>Time of Last Access\n" +

" <TD>" +

session.getLastAccessedTime() + "\n" +

"<TR>\n" +

" <TD>Number of Previous Accesses\n" +

" <TD>" + accessCount + "\n" +

"</TABLE>\n" +

"</CENTER></BODY></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:

* When I run the project, index.jsp will be shown up to help me execute servlet class.
* When I first time visit the page, heading change to Newcomer and it also provides the time I visited the page and counts number of my access. Here, when I am a newcomer, number of previous accesses is 0.A screenshot of a computer

  Description automatically generated
* When I refresh the page, number of previous accesses is added up to 1.A screenshot of a computer

  Description automatically generated
* When I refresh many times, it will counts all my activities. For example, I refreshed the page 10 times, therefore, the number of previous accesses is 10.A screenshot of a computer

  Description automatically generated