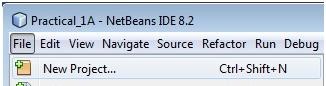
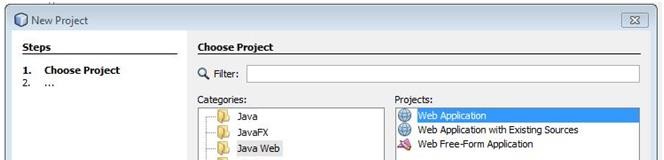
**Practical 1:** **Implement the following simple servlet application**

**1a.** Create a simple calculator application using servlet.

# Create a new project

****

**Select java web** → **web Application index.html**

<html><head><title>Calculator App</title></head><body>

<form action="CalculatorServlet" >

Enter First Number <input type="text" name="txtN1" ><br> Enter Second Number <input type="text" name="txtN2" ><br> Select an Operation

<input type="radio" name="opr" value="+">ADDTION

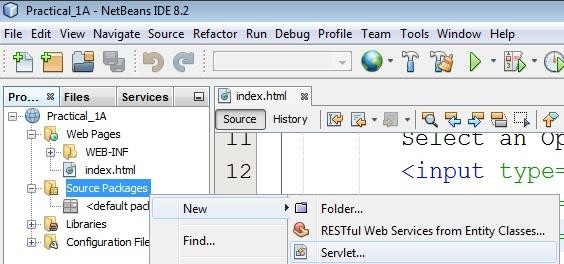
<input type="radio" name="opr" value="-">SUBSTRACTION

<input type="radio" name="opr" value="\*">MULTIPLY

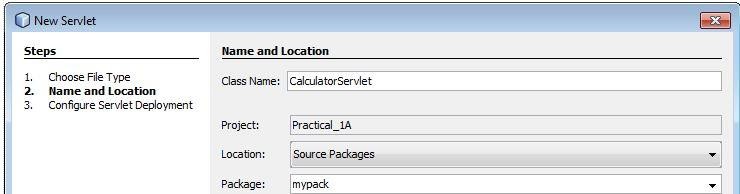
<input type="radio" name="opr" value="/">DIVIDE <br>

<input type="reset">

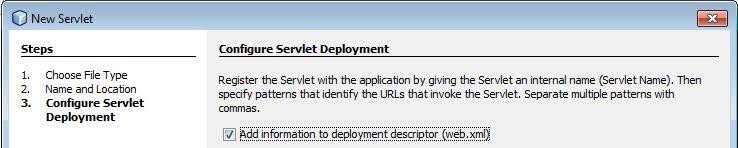
<input type="submit" value="Calculate" >

</form></body></html>

# Add a new Servlet to source package



**Name the servlet and package**



**Check “Add information to deployment descriptor” to add servlet into web.xml But preferably use annotation.**

**CalculatorServlet.java**

package mypack;

import java.io.IOException; import java.io.PrintWriter;

import javax.servlet.ServletException; import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest; import javax.servlet.http.HttpServletResponse; public class CalculatorServlet extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

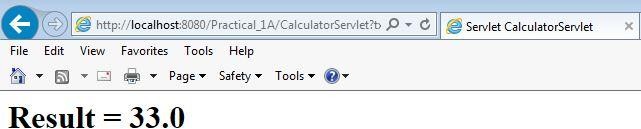
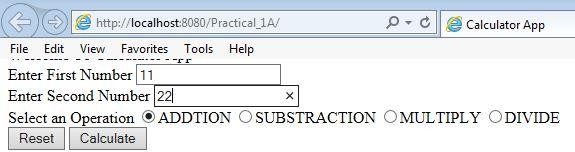
response.setContentType("text/html;charset=UTF-8"); PrintWriter out = response.getWriter();

out.println("<html><head><title>Servlet CalculatorServlet</title></head><body>"); double n1 = Double.parseDouble(request.getParameter("txtN1"));

double n2 = Double.parseDouble(request.getParameter("txtN2")); double result =0;

String opr=request.getParameter("opr");

if(opr.equals("+")) result=n1+n2; if(opr.equals("-")) result=n1-n2; if(opr.equals("\*")) result=n1\*n2; if(opr.equals("/")) result=n1/n2; out.println("<h1> Result = "+result); out.println("</body></html>");} }



**1B. Create a servlet for a login page. If the username and password are correct then it says message “Hello <username>” else a message “login failed”**

# index.html

<html><head><title>Login Form</title></head>

<form action="LoginServlet" >

Enter User ID<input type="text" name="txtId"><br>

Enter Password<input type="password" name="txtPass"><br>

<input type="reset"><input type="submit" value=" Click to Login " ></form></html>

**LoginServlet.java** package mypack; import java.io.\*;

import javax.servlet.ServletException; import javax.servlet.http.\*;

public class LoginServlet extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

out.println("<html><head><title>Servlet LoginServlet</title></head>"); String uname = request.getParameter("txtId");

String upass = request.getParameter("txtPass"); if(uname.equals("admin") && upass.equals("12345")){ out.println("<body bgcolor=blue >");

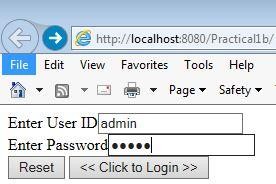
out.println("<h1> Welcome !!! "+uname+"</h1>");

}

else{

out.println("<body bgcolor=red >");out.println("<h1> Login Fail !!! </h1>");

}

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

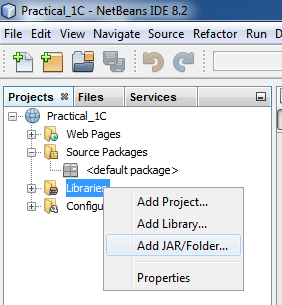
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**1C. Create a registration servlet in Java using JDBC. Accept the details such as Username, Password, Email, and Country from the user using HTML Form and store the registration details in the database**.

# MySql queries

create database LoginDB; use LoginDB;

create table user(username varchar(20) PRIMARY KEY, password varchar(20), email varchar(20), country varchar(20));

insert into user values ('admin','admin','admin@admin.com','India'); select \* from user;

* Add jar file →**<<Netbean Folder>>**\ide\modules\ext\mysql-connector-java-5.1.23-bin.jar index.html

<html><head><title>Registration Page</title></head>

<body>

<form action="RegisterServlet" >

<H1>Welcome to Registration page</H1>

Enter User Name <input type="text" name="txtUid"><br> Enter Password <input type="password" name="txtPass"><br> Enter Email <input type="text" name="txtEmail" ><br>

Enter Country <input type="text" name="txtCon" ><br>

<input type="reset" ><input type="submit" value="REGISTER" >

</form>

</body>

</html>

**RegisterServlet.java** package mypack; import java.io.\*; import java.sql.\*; import javax.servlet.\*;

import javax.servlet.http.\*;

public class RegisterServlet extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

String id = request.getParameter("txtUid"); String ps = request.getParameter("txtPass"); String em = request.getParameter("txtEmail"); String co = request.getParameter("txtCon"); try{ Class.forName("com.mysql.jdbc.Driver");

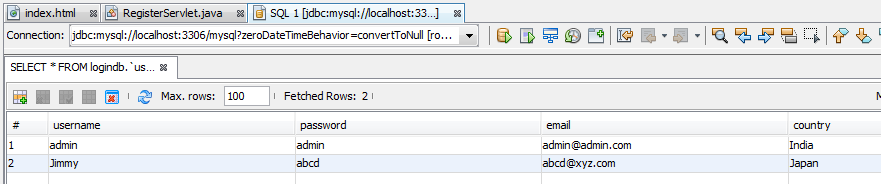
Connection con=DriverManager.getConnection("jdbc:mysql://localhost/logindb",”root”,””); PreparedStatement pst = con.prepareStatement("insert into user values(?,?,?,?)"); pst.setString(1,id);

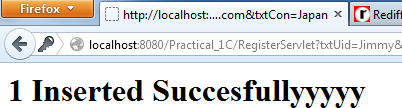
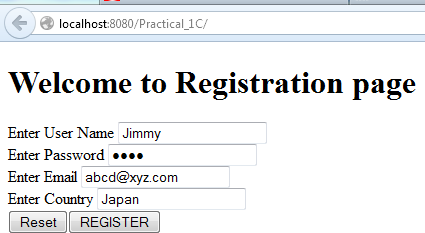
pst.setString(2,ps); pst.setString(3,em); pst.setString(4,co);

int row = pst.executeUpdate(); out.println("<h1>"+row+ " Inserted Succesfullyyyyy");

}catch(Exception e){out.println(e);}

}

}



**Practical 2: Implement the following servlet application with cookies and session**

**2A. Using Request Dispatcher Interface create a Servlet which will validate the password entered by the user, if the user has entered "Servlet" as password, then he will be forwarded to Welcome Servlet else the user will stay on the index.html page and an error message will be displayed**.

# index.html

<html><head><title>Login Form</title></head>

<form action="LoginServlet" >

Enter User ID<input type="text" name="txtId"><br>

Enter Password<input type="password" name="txtPass"><br>

<input type="reset">

<input type="submit" value=" Click to Login " >

</form>

</html> **LoginServlet.java** package mypack;

import java.io.IOException; import java.io.PrintWriter;

import javax.servlet.ServletException; import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest; import javax.servlet.http.HttpServletResponse; import javax.servlet.RequestDispatcher;

public class LoginServlet extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

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

out.println("<title>Servlet LoginServlet</title></head>"); String uname = request.getParameter("txtId");

String upass = request.getParameter("txtPass"); if(uname.equals("admin") && upass.equals("servlet")){

RequestDispatcher rd = request.getRequestDispatcher("WelcomeServlet"); rd.forward(request, response);

}

else{

out.println("<body bgcolor=red >"); out.println("<h1> Login Fail !!! </h1>");

RequestDispatcher rd = request.getRequestDispatcher("index.html"); rd.include(request, response);

}

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

# WelcomeServlet.java

package mypack;

import java.io.IOException; import java.io.PrintWriter;

import javax.servlet.ServletException; import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest; import javax.servlet.http.HttpServletResponse; import javax.servlet.RequestDispatcher;

public class LoginServlet extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

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

out.println("<title>Servlet LoginServlet</title></head>"); String uname = request.getParameter("txtId");

String upass = request.getParameter("txtPass"); if(uname.equals("admin") && upass.equals("servlet")){

RequestDispatcher rd = request.getRequestDispatcher("WelcomeServlet"); rd.forward(request, response);

}

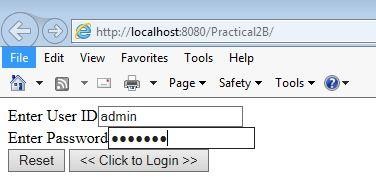
else{

out.println("<body bgcolor=red >"); out.println("<h1> Login Fail !!! </h1>");

RequestDispatcher rd = request.getRequestDispatcher("index.html"); rd.include(request, response);

}

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

} }

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**2B. Create a servlet that uses Cookies to store the number of times a user has visited servlet.**

# index.html

<html>

<head><title>Cookie Demo</title></head>

<body>

<form action="Page1" >

Enter Your Name <input type="text" name="txtName"><br>

<input type="submit" value="~~~ Click to Enter ~~~">

</form>

</body>

</html> **Page1.java** package mypack;

import java.io.IOException; import java.io.PrintWriter;

import javax.servlet.ServletException; import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest; import javax.servlet.http.HttpServletResponse; import javax.servlet.http.Cookie;

public class Page1 extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

out.println("<html><head><title>Page1</title></head>"); out.println("<body bgcolor=pink >");

String uname = request.getParameter("txtName"); out.println("<h1>~~~ Welcome "+uname+"</h1>"); Cookie ck1 = new Cookie("username", uname); Cookie ck2 = new Cookie("visit","1"); response.addCookie(ck1); response.addCookie(ck2);

out.println("<h1><a href=Page2 >Click to visit Page 2 </a></h1>"); out.println("</body>");

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

}

}

**Page2.java** package mypack; import java.io.\*;

import javax.servlet.ServletException; import javax.servlet.http.\*;

public class Page2 extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

out.println("<html><head><title>Page2</title></head>"); out.println("<body bgcolor=yellow >");

Cookie [] ck = request.getCookies(); for(int i=0;i<ck.length;i++){ if(ck[i].getName().equals("visit")){

int count = Integer.parseInt(ck[i].getValue())+1; out.println("<h1>Visit No : "+count+"</h1>"); ck[i] = new Cookie("visit",count+""); response.addCookie(ck[i]);

}

else {

out.println(ck[i].getName()+ " = "+ck[i].getValue()); } out.println("<h1><a href=Page3 >Click to visit Page 3 </a></h1>"); out.println("<h1><a href=Page4 >Click to visit Page 4 </a></h1>"); out.println("<h1><a href=Page5 >Click to visit Page 5 </a></h1>"); out.println("</body>");

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

} }

**Page3.java** package mypack; import java.io.\*;

import javax.servlet.ServletException; import javax.servlet.http.\*;

public class Page3 extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

out.println("<html><head><title>Page2</title></head>"); out.println("<body bgcolor=yellow >");

Cookie [] ck = request.getCookies(); for(int i=0;i<ck.length;i++){ if(ck[i].getName().equals("visit")){

int count = Integer.parseInt(ck[i].getValue())+1; out.println("<h1>Visit No : "+count+"</h1>"); ck[i] = new Cookie("visit",count+""); response.addCookie(ck[i]);

}

else {

out.println(ck[i].getName()+ " = "+ck[i].getValue()); }

out.println("<h1><a href=Page2 >Click to visit Page 2 </a></h1>"); out.println("<h1><a href=Page4 >Click to visit Page 4 </a></h1>"); out.println("<h1><a href=Page5 >Click to visit Page 5 </a></h1>"); out.println("</body>");

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

}}

**Page4.java** package mypack; import java.io.\*;

import javax.servlet.ServletException; import javax.servlet.http.\*;

public class Page4 extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

out.println("<html><head><title>Page2</title></head>"); out.println("<body bgcolor=yellow >");

Cookie [] ck = request.getCookies(); for(int i=0;i<ck.length;i++){ if(ck[i].getName().equals("visit")){

int count = Integer.parseInt(ck[i].getValue())+1; out.println("<h1>Visit No : "+count+"</h1>"); ck[i] = new Cookie("visit",count+""); response.addCookie(ck[i]);

}

else {

out.println(ck[i].getName()+ " = "+ck[i].getValue()); }

out.println("<h1><a href=Page2>Click to visit Page 2 </a></h1>"); out.println("<h1><a href=Page3 >Click to visit Page 3 </a></h1>"); out.println("<h1><a href=Page5 >Click to visit Page 5 </a></h1>"); out.println("</body>");

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

}}

**Page5.java** package mypack; import java.io.\*;

import javax.servlet.ServletException; import javax.servlet.http.\*;

public class Page5 extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

out.println("<html><head><title>Page2</title></head>"); out.println("<body bgcolor=yellow >");

Cookie [] ck = request.getCookies(); for(int i=0;i<ck.length;i++){ if(ck[i].getName().equals("visit")){

int count = Integer.parseInt(ck[i].getValue())+1; out.println("<h1>Visit No : "+count+"</h1>"); ck[i] = new Cookie("visit",count+""); response.addCookie(ck[i]);

}

else {

out.println(ck[i].getName()+ " = "+ck[i].getValue()); }

out.println("<h1><a href=Page2>Click to visit Page 2 </a></h1>"); out.println("<h1><a href=Page3 >Click to visit Page 3 </a></h1>"); out.println("<h1><a href=Page4 >Click to visit Page 4 </a></h1>"); out.println("</body>");

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

}}

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**2C. Create a servlet demonstrating the use of session creation and destruction. Also check whether the user has visited this page first time or has visited earlier also using sessions.**

# index.html

<html>

<head><title>Session Demo</title></head>

<form action="Page1" method="get" >

Enter User ID <input type="text" name="txtName"><br>

<input type="reset" ><input type="submit" >

</form>

</html> **Page1.java** package mypack;

import java.io.IOException; import java.io.PrintWriter;

import javax.servlet.ServletException; import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest; import javax.servlet.http.HttpServletResponse; import javax.servlet.http.HttpSession;

public class Page1 extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

out.println("<html><head><title>Servlet Page1</title></head>");

HttpSession hs = request.getSession(true); if(hs.isNew()){

out.println("<body bgcolor=yellow>");

String name = request.getParameter("txtName"); hs.setAttribute("uname", name); hs.setAttribute("visit", "1");

out.println("<h1>Welcome First Time</h1>");

}

else{

out.println("<h1>Welcome Again</h1>");

int visit = Integer.parseInt((String)hs.getAttribute("visit"))+1; out.println("<h1>You Visited "+visit+"Times</h1>"); hs.setAttribute("visit", ""+visit);

}

out.println("<h1>Your Session ID "+hs.getId()+"</h1>");

out.println("<h1>You Logged in at "+new java.util.Date(hs.getCreationTime())+"</h1>"); out.println("<h1><a href=Page2>Click for Page 2 </a></h1>");

out.println("<h1><a href=Page3>Click for Page 3 </a></h1>");

out.println("<h1><a href=Page4>Click for Page 4 </a></h1>"); out.println("<h1><a href=LogoutServlet>Click to Terminate Session </a></h1>"); out.println("</body>");

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

}

}

# Page2.java

package mypack;

import java.io.IOException; import java.io.PrintWriter;

import javax.servlet.ServletException; import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest; import javax.servlet.http.HttpServletResponse; import javax.servlet.http.HttpSession;

public class Page2 extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

out.println("<html><head><title>Servlet Page2</title></head>");

HttpSession hs = request.getSession(false); out.println("<h1>Welcome Again on Page No. 2</h1>");

int visit = Integer.parseInt((String)hs.getAttribute("visit"))+1; out.println("<h1>You Visited "+visit+"Times</h1>"); hs.setAttribute("visit", ""+visit);

out.println("<h1>Your Session ID "+hs.getId()+"</h1>");

out.println("<h1>You Logged in at "+new java.util.Date(hs.getCreationTime())+"</h1>"); out.println("<h1><a href=Page1>Click for Page 1 </a></h1>");

out.println("<h1><a href=Page3>Click for Page 3 </a></h1>"); out.println("<h1><a href=Page4>Click for Page 4 </a></h1>"); out.println("<h1><a href=LogoutServlet>Click for Terminate Session </a></h1>"); out.println("</body>");

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

}

}

# Page3.java

package mypack;

import java.io.IOException;

import java.io.PrintWriter;

import javax.servlet.ServletException; import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest; import javax.servlet.http.HttpServletResponse; import javax.servlet.http.HttpSession;

public class Page3 extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

out.println("<html><head><title>Servlet Page2</title></head>");

HttpSession hs = request.getSession(false); out.println("<h1>Welcome Again on Page No. 2</h1>");

int visit = Integer.parseInt((String)hs.getAttribute("visit"))+1; out.println("<h1>You Visited "+visit+"Times</h1>"); hs.setAttribute("visit", ""+visit);

out.println("<h1>Your Session ID "+hs.getId()+"</h1>");

out.println("<h1>You Logged in at "+new java.util.Date(hs.getCreationTime())+"</h1>"); out.println("<h1><a href=Page1>Click for Page 1 </a></h1>");

out.println("<h1><a href=Page2>Click for Page 2 </a></h1>"); out.println("<h1><a href=Page4>Click for Page 4 </a></h1>"); out.println("<h1><a href=LogoutServlet>Click for Terminate Session </a></h1>"); out.println("</body>");

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

}

}

# Page4.java

package mypack;

import java.io.IOException;

import java.io.PrintWriter;

import javax.servlet.ServletException; import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest; import javax.servlet.http.HttpServletResponse; import javax.servlet.http.HttpSession;

public class Page3 extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

out.println("<html><head><title>Servlet Page2</title></head>");

HttpSession hs = request.getSession(false); out.println("<h1>Welcome Again on Page No. 2</h1>");

int visit = Integer.parseInt((String)hs.getAttribute("visit"))+1; out.println("<h1>You Visited "+visit+"Times</h1>"); hs.setAttribute("visit", ""+visit);

out.println("<h1>Your Session ID "+hs.getId()+"</h1>");

out.println("<h1>You Logged in at "+new java.util.Date(hs.getCreationTime())+"</h1>"); out.println("<h1><a href=Page1>Click for Page 1 </a></h1>");

out.println("<h1><a href=Page2>Click for Page 2 </a></h1>"); out.println("<h1><a href=Page3>Click for Page 3 </a></h1>"); out.println("<h1><a href=LogoutServlet>Click for Terminate Session </a></h1>"); out.println("</body>");

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

}

}

**LogoutServlet.java**

package mypack;

import java.io.IOException; import java.io.PrintWriter;

import javax.servlet.ServletException;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest; import javax.servlet.http.HttpServletResponse; public class LogoutServlet extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

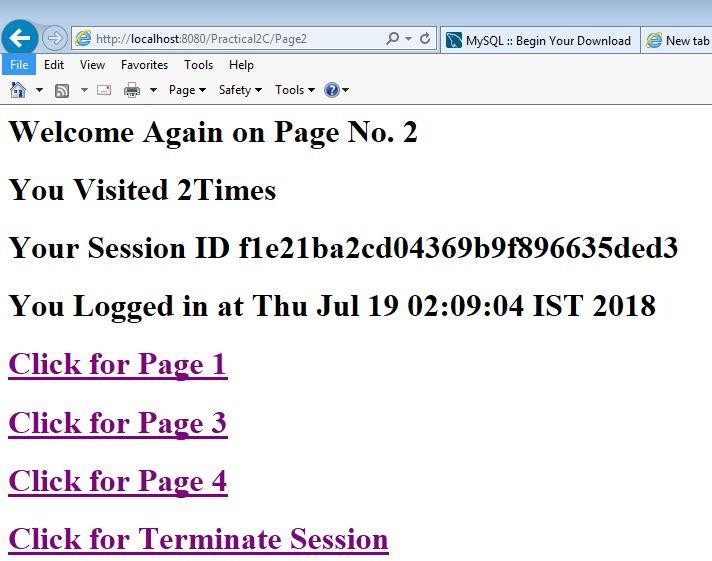
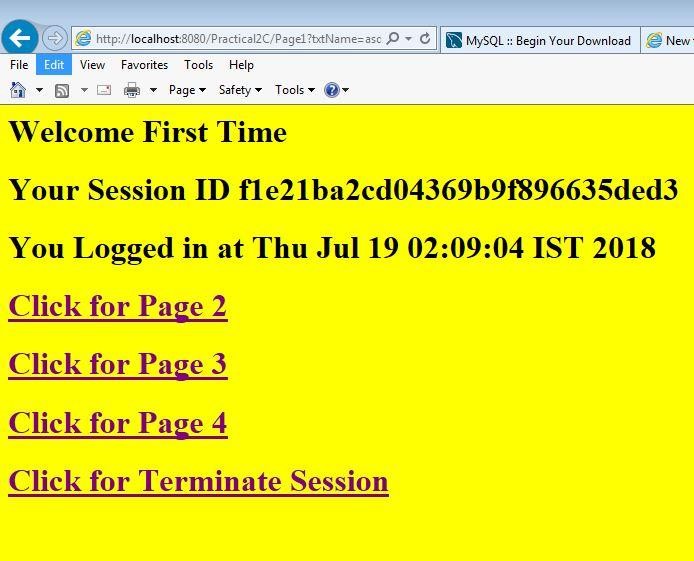
out.println("<html><head><title>Servlet LogoutServlet</title></head>"); out.println("<body>");

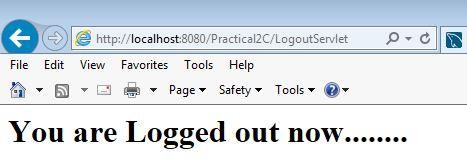
javax.servlet.http.HttpSession hs = request.getSession(); if(hs != null) hs.invalidate();

out.println("<h1>You are Logged out now........</h1>"); out.println("</body>");

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

}}





**Practical 3: Implement the servlet IO and file application**

**3A. Create a Servlet application to upload and download a file.**

# Index.html

<html>

<body>

<form action="FileUploadServlet" method="post" enctype="multipart/form-data"> Select File to Upload:<input type="file" name="file" id="file">

Destination <input type="text" value="/tmp" name="destination">

<br>

<input type="submit" value="Upload file" name="upload" id="upload">

</form>

</body>

</html>

# FileUploadServlet.java

package fileservletapp;

import java.io.\*;

import javax.servlet.ServletException;

import javax.servlet.http.\*;

import com.oreilly.servlet.MultipartRequest;

public class upload extends HttpServlet {

public void doPost(HttpServletRequest request, HttpServletResponse response)

throws ServletException, IOException {

response.setContentType("text/html");

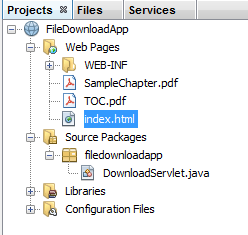
PrintWriter out = response.getWriter();

MultipartRequest m=new MultipartRequest(request,"e:/tmp");

out.print("successfully uploaded");

}

}



# index.html

<html>

<head>

<title>File Download Page</title>

</head>

<body>

<h1>File Download Application</h1>

Click <a href="DownloadServlet?filename=SampleChapter.pdf">Sample Chapter</a>

<br/><br/>

Click <a href="DownloadServlet?filename=TOC.pdf">Table Of Contents</a>

</body>

</html>

# DownloadServlet.java

package filedownloadapp;

import java.io.IOException;

import java.io.InputStream;

import java.io.PrintWriter;

import javax.servlet.ServletContext;

import javax.servlet.ServletException;

import javax.servlet.ServletOutputStream;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

public class DownloadServlet extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

response.setContentType("APPLICATION/OCTET-STREAM");

String filename = request.getParameter("filename");

ServletContext context = getServletContext();

InputStream is = context.getResourceAsStream("/" + filename);

//ServletOutputStream out = response.getOutputStream(); // any of the two works

PrintWriter out=response.getWriter();

response.setHeader("Content-Disposition","attachment;

filename=\"" + filename + "\"");

int i;

while ((i=is.read()) != -1) { out.write(i);

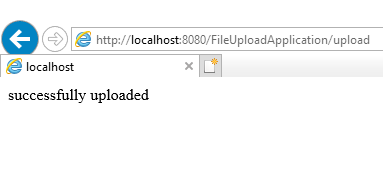
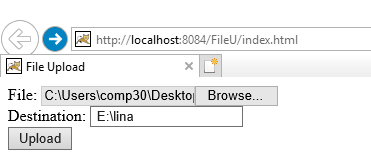
}

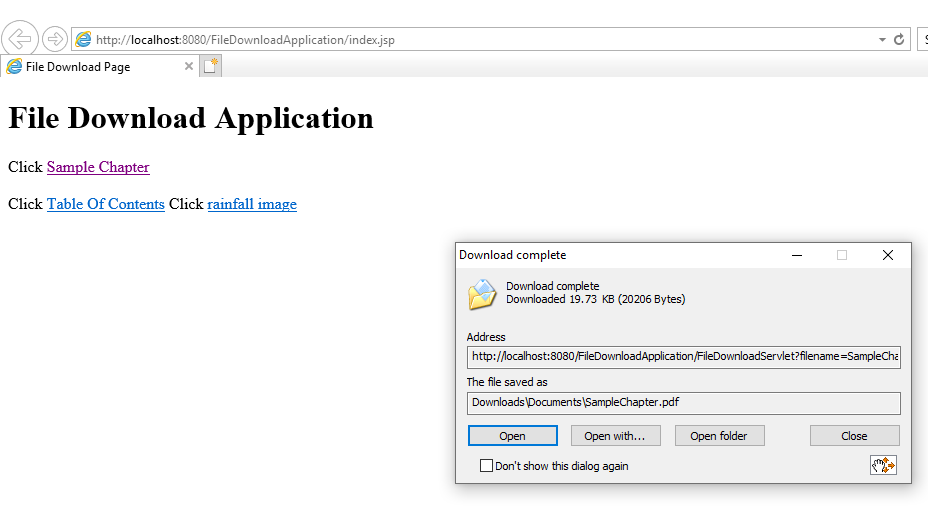
is.close();

out.close();

}

}





**3B. Develop Simple Servlet Question Answer Application using Database.**

create database qadb; use qabd;

create table quiz (qno varchar(5) PRIMARY KEY,question varchar(100), op1 varchar(50), op2 varchar(50), op3 varchar(50), op4 varchar(50), ans varchar(50))

insert into quiz values('001','What is the capital of India??','New Delhi','Kolkata','Chennai','Mumbai','New Delhi');

insert into quiz values('002','Who was the First President of India??','Dr. Rajendra Prasad','Dr. S. Radhakrishnan','Ram Nath Kovind','V. V. Giri','Dr. Rajendra Prasad');

insert into quiz values('003','What is ORM','Object Ratio Mean','Object Rotation Measure','Object Relation Mapping','Oracle Request Management','Object Relation Mapping');

insert into quiz values('004','Unit of Energy is \_','Dozon','Kilo Meter ','Joul','Hertz','Joul')

insert into quiz values('005',' --- is the smallest memory unit.','bit','byte','Kilo Byte','Giga Byte','bit')

# index.html

<html><head><title>Quiz Application</title></head>

<body>

<h1>Welcome to Quiz Servlet </h1>

<h1><a href="QuizServlet" >CLICK TO START QUIZ</a></h1>

</body>

</html> **QuizServlet.java** package mypack;

import java.io.\*; import java.sql.\*; import javax.servlet.\*;

import javax.servlet.http.\*;

public class QuizServlet extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

out.println("<form action=ShowResult >"); try {

Class.forName("com.mysql.jdbc.Driver"); Connection con =

DriverManager.getConnection("jdbc:mysql://localhost:3306/qadb","root","root"); Statement stmt = con.createStatement();

ResultSet res = stmt.executeQuery("select \* from quiz"); out.println("<table border=1 >");

int qno=0; while(res.next()){

qno++;

out.println("<tr><td>"+res.getString(1)+"</td>"); out.println("<td>"+res.getString(2)+"</td></tr>"); out.println("<tr><td><input type=radio name="+qno+" value="+res.getString(3)+"></td><td>"+res.getString(3)+"</td></tr>"); out.println("<tr><td><input type=radio name="+qno+" value="+res.getString(4)+"></td><td>"+res.getString(4)+"</td></tr>"); out.println("<tr><td><input type=radio name="+qno+" value="+res.getString(5)+"></td><td>"+res.getString(5)+"</td></tr>"); out.println("<tr><td><input type=radio name="+qno+" value="+res.getString(6)+"></td><td>"+res.getString(6)+"</td></tr>");

}

}catch(Exception e){out.println(e);} out.println("</table>"); out.println("<input type=reset >");

out.println("<input type=submit value=SUBMIT >"); out.println("</form>"); } }

---------------------------------------------- ShowResult.java--------------------------------

package mypack; import java.io.\*; import java.sql.\*; import javax.servlet.\*;

import javax.servlet.http.\*;

public class ShowResult extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

try { Class.forName("com.mysql.jdbc.Driver");

Connection con = DriverManager.getConnection("jdbc:mysql://localhost/qadb","root",""); Statement stmt = con.createStatement();

ResultSet res = stmt.executeQuery("select ans from quiz"); int count =0, qno=0;

while(res.next()){ if(res.getString(1).equals(request.getParameter(""+(++qno))))

{ count++; out.println("<h1>Correct </h1>");

}

else {

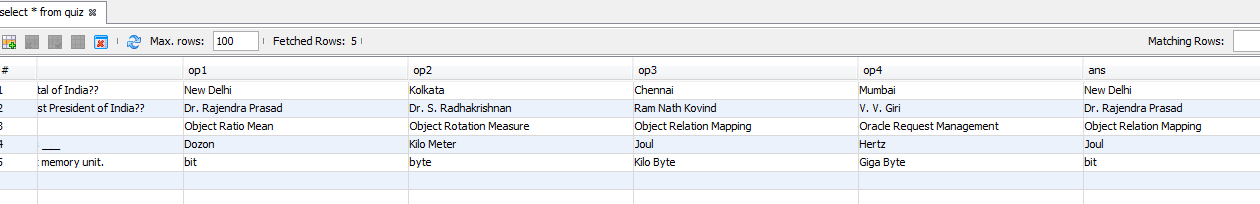
out.println("<h1>Incorrect </h1>");

}

}

out.println("<h1>Your Score is "+count+" </h1>");

}catch(Exception e){out.println(e);}}}



|  |  |
| --- | --- |
| QuizServlet | ShowResult |
|  |  |

**3C. Create simple Servlet application to demonstrate Non-Blocking Read Operation.**

**index.html**

<html>

<head>

<title>Non Blocking IO</title>

<meta charset="UTF-8">

<meta http-equiv="Refresh" content="0; URL=NonBlockingServlet">

</head>

<body>

</body>

</html>

**----------------------------------------------- NonBlockingServlrt.java ---------------------**

package nonblkapp;

import java.io.\*; import java.net.\*; import javax.servlet.\*;

import javax.servlet.http.\*;

public class NonBlockingServlet extends HttpServlet {

protected void service(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

response.setContentType("text/html;charset=UTF-8"); try (PrintWriter out = response.getWriter()) {

out.println("<h1>FileReader</h1>"); String filename="/WEB-INF/booklist.txt"; ServletContext c=getServletContext();

InputStream in=c.getResourceAsStream(filename);

String path="http://"+request.getServerName()+":"+request.getServerPort()+request.getContextPath()+"/Rea dingNonBloclingServlet";

URL url=new URL(path);

HttpURLConnection conn=(HttpURLConnection)url.openConnection(); conn.setChunkedStreamingMode(2);

conn.setDoOutput(true); conn.connect(); if(in!=null)

{

InputStreamReader inr=new InputStreamReader(in); BufferedReader br = new BufferedReader(inr); String text="";

System.out.println("Reading started...."); BufferedWriter bw=new BufferedWriter(new

OutputStreamWriter(conn.getOutputStream())); while((text=br.readLine())!=null){

out.print(text+"<br>");

try{ Thread.sleep(1000); out.flush();

}

catch(InterruptedException ex){}

}out.print("reading completed...."); bw.flush();

bw.close();

}

}

}

}

**------------------------------------- ReadingListener.java -----------------------------**

package nonblkapp;

import java.io.IOException; import java.util.logging.Level; import java.util.logging.Logger;

import javax.servlet.AsyncContext; import javax.servlet.ReadListener; import javax.servlet.ServletInputStream;

public class ReadingListener implements ReadListener

{

private ServletInputStream input = null; private AsyncContext ac = null;

ReadingListener(ServletInputStream in, AsyncContext c) { input = in;

ac = c;

}

@Override

public void onDataAvailable() throws IOException {

}

public void onAllDataRead() throws IOException { ac.complete();

}

public void onError(final Throwable t) { ac.complete();

t.printStackTrace();

}

}

**---------------------------------- ReadingNonBlockingServlet.java --------------------------------**

package nonblkapp;

import java.io.IOException; import java.io.PrintWriter;

import javax.servlet.AsyncContext; import javax.servlet.ServletException; import javax.servlet.ServletInputStream;

import javax.servlet.annotation.WebServlet; import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest; import javax.servlet.http.HttpServletResponse;

/\*\*

\*

\* @author Beena

\*/

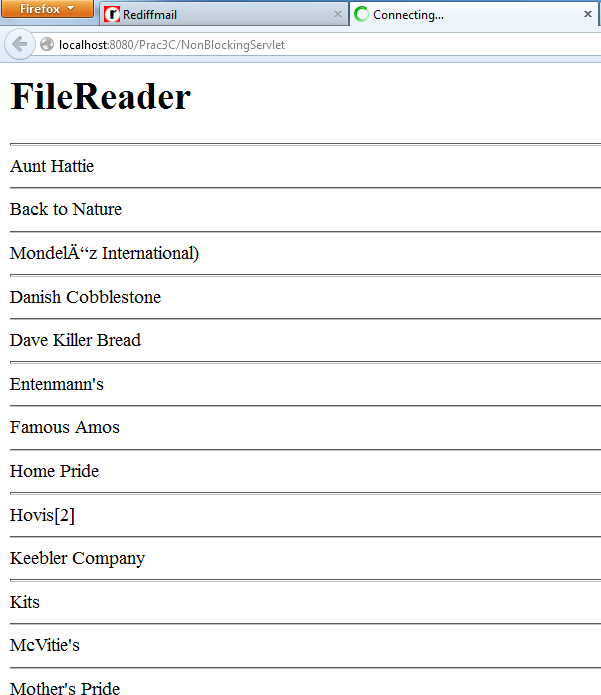
@WebServlet (name = "ReadingNonBlockingServlet", urlPatterns =

{"/ReadingNonBlockingServlet"},asyncSupported = true ) public class ReadingNonBlockingServlet extends HttpServlet { @Override

protected void service(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

response.setContentType("text/html"); AsyncContext ac = request.startAsync(); ServletInputStream in=request.getInputStream(); in.setReadListener(new ReadingListener(in,ac));

}

}

**Practical 4: Implement the following JSP manual**

**4A. Develop a simple JSP application to display values obtained from the use of intrinsic objects of various types.**

<%@page contentType="text/html" pageEncoding="UTF-8"%>

<html><head><title>JSP Page</title></head>

<body>

<h1>Use of Intrinsic Objects in JSP</h1>

<h1>Request Object </h1>

Query String <%=request.getQueryString() %><br> Context Path <%=request.getContextPath() %><br> Remote Host <%=request.getRemoteHost() %><br>

<h1>Response Object </h1>

Character Encoding Type <%=response.getCharacterEncoding() %><br> Content Type <%=response.getContentType() %><br>

Locale <%=response.getLocale() %><br>

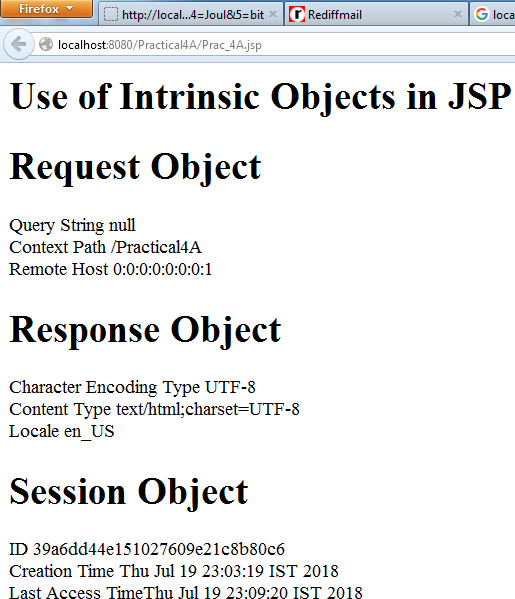
<h1>Session Object </h1>

ID <%=session.getId() %><br>

Creation Time <%=new java.util.Date(session.getCreationTime()) %><br>

Last Access Time<%=new java.util.Date(session.getLastAccessedTime()) %><br>

</body>

</html>

**4B. Develop a simple JSP application to pass values from one page to another with validations. (Name-txt, age-txt, hobbies-checkbox, email-txt, gender-radio button).**

# index.html

<html><head><title>User Information Paage</title>

</head>

<body>

<form action="Validate.jsp">

Enter Your Name<input type="text" name="name" ><br> Enter Your Age<input type="text" name="age" ><br> Select Hobbies

<input type="checkbox" name="hob" value="Singing">Singing

<input type="checkbox" name="hob" value="Reading">Reading Books

<input type="checkbox" name="hob" value="Football">Playing Football<br> Enter E-mail<input type="text" name="email" ><br>

Select Gender

<input type="radio" name="gender" value="male">Male

<input type="radio" name="gender" value="female">Female

<input type="radio" name="gender" value="other">Other<br>

<input type="hidden" name="error" value="">

<input type="submit" value="Submit Form">

</form>

</body>

</html>

**------------------------------------------ Validate.jsp----------------------------------------------------**

<%@page contentType="text/html" pageEncoding="UTF-8" import="mypack.\*" %>

<html><head><title>JSP Page</title></head>

<body>

<h1>Validation Page</h1>

<jsp:useBean id="obj" scope="request" class="mypack.CheckerBean" >

<jsp:setProperty name="obj" property="\*"/>

</jsp:useBean>

<%if (obj.validate())

{ %>

<jsp:forward page="successful.jsp"/>

<% }

else {%>

<jsp:include page="index.html"/>

<%}%>

<%=obj.getError() %></body></html>

**----------------------------------------CheckerBean.java-------------------------------------------**

package mypack;

public class CheckerBean {

private String name, age, hob, email, gender, error; public CheckerBean(){error="";}

public void setName(String n){name=n;} public void setAge(String a){age=a;} public void setHob(String h){hob=h;} public void setEmail(String e){email=e;} public void setGender(String g){gender=g;} public void setError(String e){error=e;} public String getName(){return name;} public String getAge(){return age;}

public String getHob(){return hob;} public String getEmail(){return email;} public String getGender(){return gender;} public String getError(){return error;} public boolean validate(){

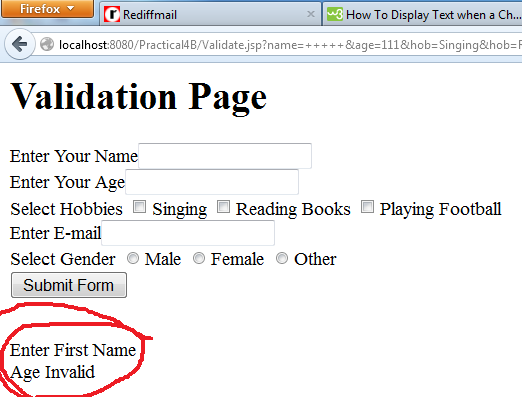
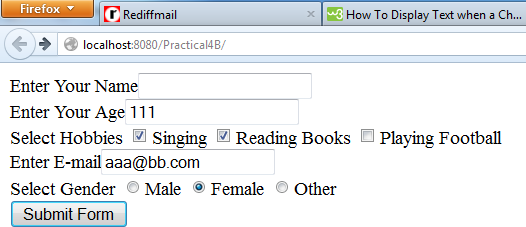
boolean res=true;

if(name.trim().equals("")) {error+="<br>Enter First Name";res=false;} if(age.length() > 2 )

{error+="<br>Age Invalid";res=false;}

return res;

}

}

**4C. Create a registration and login JSP application to register and authenticate the user based on username and password using JDBC.**

**--------------------------------------Register.html--------------------------------------**

<html><head><title>New User Registration Page</title></head>

<body>

<form action="Register.jsp" >

<h1> New User Registration Page</h1>

Enter User Name <input type="text" name="txtName" ><br> Enter Password <input type="password" name="txtPass1" ><br>

Re-Enter Password<input type="password" name="txtPass2" ><br> Enter Email<input type="text" name="txtEmail" ><br>

Enter Country Name <input type="text" name="txtCon" ><br>

<input type="reset" ><input type="submit" value="REGISTER" >

</form>

</body>

</html>

**----------------------------------------Register.jsp-------------------------------------------**

<%@page contentType="text/html" import="java.sql.\*"%>

<html><body>

<h1>Registration JSP Page</h1>

<%

String uname=request.getParameter("txtName"); String pass1 = request.getParameter("txtPass1"); String pass2 = request.getParameter("txtPass2"); String email = request.getParameter("txtEmail"); String ctry = request.getParameter("txtCon");

if(pass1.equals(pass2)){ try{

Class.forName("com.mysql.jdbc.Driver");

Connection con = DriverManager.getConnection("jdbc:mysql://localhost/logindb",”root”,“”); PreparedStatement stmt = con.prepareStatement("insert into user values (?,?,?,?)"); stmt.setString(1, uname); stmt.setString(2, pass1);

stmt.setString(3, email); stmt.setString(4, ctry); int row = stmt.executeUpdate();

if(row==1) { out.println("Registration Successful"); } else {

out.println("Registration FFFFFAAAIIILLLL !!!!");

%><jsp:include page="Register.html" ></jsp:include>

<%

}

}catch(Exception e){out.println(e);}

}

else

{

out.println("<h1>Password Mismatch</h1>");

%>

<jsp:include page="Register.html" ></jsp:include>

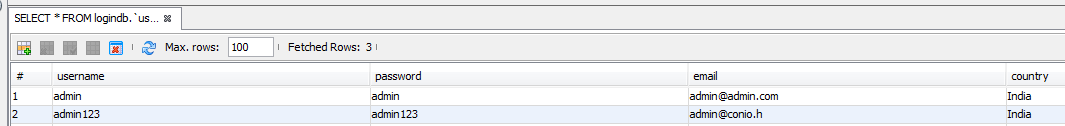
<% }

%>

</body>

</html>

|  |  |
| --- | --- |
|  |  |
|  |  |



**------------------- Login.html -----------------------------------**

<html>

<body>

<h1>Login Page</h1>

<form action="Login.jsp" >

Enter User Name <input type="text" name="txtName" ><br> Enter Password <input type="password" name="txtPass" ><br>

<input type="reset" ><input type="submit" value="~~~LOGIN~~" >

</form>

</body></html>

**------------------- Login.jsp----------------------------------**

<%@page contentType="text/html" import="java.sql.\*"%>

<html><body>

<h1>Registration JSP Page</h1>

<%

String uname=request.getParameter("txtName"); String pass = request.getParameter("txtPass");

try{ Class.forName("com.mysql.jdbc.Driver");

Connection con = DriverManager.getConnection("jdbc:mysql://localhost:/logindb","root",””); PreparedStatement stmt = con.prepareStatement("select password from user where username=?"); stmt.setString(1, uname);

ResultSet rs = stmt.executeQuery(); if(rs.next()){

if(pass.equals(rs.getString(1)))

{

out.println("<h1>~~~ LOGIN SUCCESSFULLL ~~~ </h1>");

}

}

else{

out.println("<h1>User Name not exist !!!!!</h1>");

%>

<jsp:include page="Register.html" ></jsp:include>

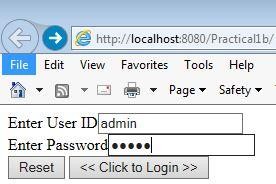
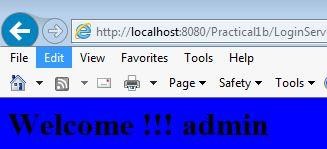
<%

}

}catch(Exception e){out.println(e);}

%>

</body></html>



**Practical 5: Implement the following JSP,JSTL and EL application**

**5a. Create an html page with fields, eno, name, age, desg, salary. Now on submit this data to a JSP page which will update the employee table of database with matching eno.**

create table emp(empid varchar(10) PRIMARY KEY, ename varchar(50), salary varchar(50),age varchar(50) )

insert into emp values('1','aaa','221234','11') insert into emp values('2','bbb','334567','22') insert into emp values('3','ccc','44454','33')

insert into emp values('4','ddd','55123','44')

**---- index.html ---------**

<html>

<body>

<form action="UpdateEmp.jsp" >

Enter Employee Number<input type="text" name="txtEno" ><br> Enter Name<input type="text" name="txtName" ><br>

Enter age<input type="text" name="txtAge" ><br> Enter Salary<input type="text" name="txtSal" ><br>

<input type="reset" ><input type="submit">

</form>

</body>

</html>

**------------------- UpdateEmp.java --------------------------------**

<%@page contentType="text/html" import="java.sql.\*" %>

<html><body>

<h1>Employee Record Update</h1>

<%

String eno=request.getParameter("txtEno"); String name=request.getParameter("txtName"); String age = request.getParameter("txtAge"); String sal = request.getParameter("txtSal");

try{ Class.forName("com.mysql.jdbc.Driver");

Connection con = DriverManager.getConnection("jdbc:mysql://localhost/empdb",”roor”,””); PreparedStatement stmt = con.prepareStatement("select \* from emp where empid=?"); stmt.setString(1, eno);

ResultSet rs = stmt.executeQuery(); if(rs.next()){

out.println("<h1>~~~ Employee "+name+" Exist ~~~ </h1>");

PreparedStatement pst1= con.prepareStatement("update emp set salary=? where empid=?"); PreparedStatement pst2= con.prepareStatement("update emp set age=? where empid=?"); pst1.setString(1, sal); pst1.setString(2, eno);

pst2.setString(1, age); pst2.setString(2, eno); pst1.executeUpdate(); pst2.executeUpdate();

}

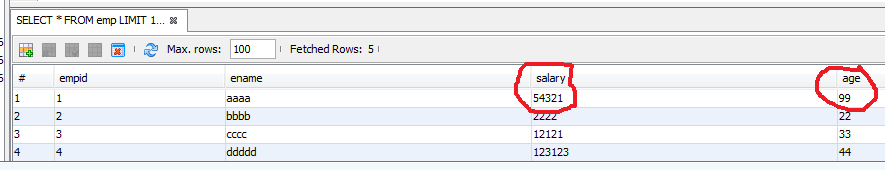
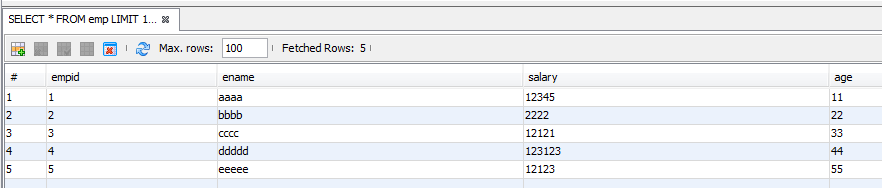
else{

out.println("<h1>Employee Record not exist !!!!!</h1>");

}

}catch(Exception e){out.println(e);}

%></body></html>



**5B. Create a JSP application to demonstrate the use of JSTL.**

# Basic insert, update and delete example using core and sql tag libraries in JSTL.

CREATEDATABASEIF NOTEXISTS sampleDB;

CREATETABLE`product` (

`id` int(10) unsigned NOTNULLauto\_increment,

`pname` varchar(45) NOTNULL,

`quantity` int(10) unsigned NOTNULL, PRIMARYKEY (`id`)

);

INSERTINTO`product` (`id`,`pname`,`quantity`) VALUES (1,'Mouse',50),

(2,'Keyboard',5),

(3,'Monitor',34);

# index.jsp

<%@page contentType="text/html" pageEncoding="UTF-8"%>

<!DOCTYPE html>

<html>

<head>

<metahttp-equiv="Content-Type"content="text/html; charset=UTF-8">

<title>JSP Page</title>

</head>

<body>

<h1>Choose Option</h1>

<a href="insert.jsp">Insert Record</a><p></p>

<a href="display.jsp">Display Record</a>

</body>

</html>

# insert.jsp

<%@page content Type="text/html" pageEncoding="UTF-8"%>

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

<!DOCTYPE html>

<html>

<head>

<metahttp-equiv="Content-Type"content="text/html; charset=UTF-8">

<title>JSP Page</title>

</head>

<body>

<form action="insertdb.jsp" method="post">

<table border="0"cellspacing="2"cellpadding="5">

<thead>

<tr>

<th colspan="2">Purchase Product</th>

</tr>

</thead>

<tbody>

<tr>

<td><label>Product Name</label></td>

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

</tr>

<tr>

<td><label>Quantity</label></td>

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

</tr>

<tr>

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

<td><inpu type="reset" value="reset"/></td>

</tr>

</tbody>

</table>

</form>

<font color="red"><c:iftest="${not empty param.errMsg}">

<c:outvalue="${param.errMsg}"/>

<a href="index.jsp">Go Back</a>

</c:if></font>

<font color="green"><c:iftest="${not empty param.susMsg}">

<c:outvalue="${param.susMsg}"/>

<a href="index.jsp">Go Back</a>

</c:if></font>

</body>

</html>

# insertdb.jsp

<%@ page import="java.io.\*,java.util.\*,java.sql.\*"%>

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

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

<html>

<head>

<title>JINSERT Operation</title>

</head>

<body>

<c:iftest="${ empty param.pname or empty param.qty}">

<c:redirecturl="insert.jsp">

<c:paramname="errMsg"value="Please Enter Product and Quantity"/>

</c:redirect>

</c:if>

<sql:setDataSource var="dbsource" driver="com.mysql.jdbc.Driver"

url="jdbc:[mysql://localhost/sampleDB](mysql://localhost/loginjdbc)" user="root" password=""/>

<sql:updatedataSource="${dbsource}" var="result"> INSERT INTO product(pname, quantity) VALUES (?,?);

<sql:paramvalue="${param.pname}"/>

<sql:paramvalue="${param.qty}"/>

</sql:update>

<c:iftest="${result>=1}">

<font size="5"color='green'> Congratulations ! Data inserted successfully.</font>

<c:redirecturl="insert.jsp">

<c:paramname="susMsg" value="Congratulations ! Data inserted successfully." />

</c:redirect>

</c:if>

</body>

</html>

# display.jsp

<%@ page import="java.io.\*,java.util.\*,java.sql.\*"%>

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

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

<html>

<head>

<title>SELECT Operation</title>

<script>

function confirmGo(m,u) { if ( confirm(m) ) {

window.location = u;

}

}

</script>

</head>

<body>

<sql:setDataSource var="dbsource" driver="com.mysql.jdbc.Driver"

url="jdbc:[mysql://localhost/sampleDB](mysql://localhost/loginjdbc)" user="root" password=""/>

<sql:querydataSource="${dbsource}" var="result"> SELECT \* from product;

</sql:query>

<center>

<form>

<table border="1"width="40%">

<caption>Product List</caption>

<tr>

<th>Product ID</th>

<th>Product Name</th>

<th>Quantity</th>

<th colspan="2">Action</th>

</tr>

<c:forEachvar="row" items="${result.rows}">

<tr>

<td><c:outvalue="${row.id}"/></td>

<td><c:outvalue="${row .pname}"/></td>

<td><c:outvalue="${row. quantity}"/></td>

<td><a href="update.jsp?id=<c:out value="${row.id}"/>">Update</a></td>

<td><a href="javascript:confirmGo('Sure to delete this record?','deletedb.jsp?id=<c:out value="${row.id}"/>')">Delete</a></td>

</tr>

</c:forEach>

</table>

</form>

<ahref="index.jsp">Go Home</a>

</center>

</body>

</html>

# update.jsp

<%@page content Type="text/html" pageEncoding="UTF-8"%>

<%@ page import="java.io.\*,java.util.\*,java.sql.\*"%>

<%@ 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>

<metahttp-equiv="Content-Type" content="text/html; charset=UTF-8">

<title>JSP Page</title>

</head>

<body>

<sql:setDataSourcevar="dbsource" driver="com.mysql.jdbc.Driver"

url="jdbc:[mysql://localhost/sampleDB](mysql://localhost/loginjdbc)"

user=”root" password=""/>

<sql:querydataSource="${dbsource}" var="result"> SELECT \* from product where id=?;

<sql:paramvalue="${param.id}"/>

</sql:query>

<form action="updatedb.jsp" method="post">

<table border="0"width="40%">

<caption>Update Product</caption>

<tr>

<th>Product Name</th>

<th>Quantity</th>

</tr>

<c:forEachvar="row" items="${result. rows}">

<tr>

<td><input type="hidden" value="${param.id}" name="id"/>

<input type="text" value="${row.pname}" name="pname"/></td>

<td><input type="text" value="${row.quantity}"name="qty"/></td>

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

</tr>

</c:forEach>

</table>

<ahref="index.jsp">Go Home</a>

</form>

</body>

</html>

# updatedb.jsp

<%@page content Type="text/html" pageEncoding="UTF-8"%>

<%@ page import="java.io.\*,java.util.\*,java.sql.\*"%>

<%@ 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>

<metahttp-equiv="Content-Type"content="text/html; charset=UTF-8">

<title>JSP Page</title>

</head>

<body>

<sql:setDataSource var="dbsource" driver="com.mysql.jdbc.Driver"

url="jdbc:[mysql://localhost/sampleDB](mysql://localhost/loginjdbc)"

user="root" password=""/>

<sql:updatedataSource="${dbsource}" var="count"> UPDATE product SET pname = ?, quantity=?

WHERE id='${param.id}'

<sql:paramvalue="${param.pname}"/>

<sql:paramvalue="${param.qty}"/>

</sql:update>

<c:iftest="${count>=1}">

<font size="5"color='green'> Congratulations ! Data updated successfully.</font>

<a href="index.jsp">Go Home</a>

</c:if>

</body>

</html>

# deletedb.jsp

<%@page content Type="text/html" pageEncoding="UTF-8"%>

<%@ page import="java.io.\*,java.util.\*,java.sql.\*"%>

<%@ 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>

<metahttp-equiv="Content-Type"content="text/html; charset=UTF-8">

<title>JSP Page</title>

</head>

<body>

<sql:setDataSource var="dbsource" driver="com.mysql.jdbc.Driver"

url="jdbc:[mysql://localhost/sampleDB](mysql://localhost/loginjdbc)"

user="root" password=""/>

<sql:updatedataSource="${dbsource}"var="count"> DELETE FROM product

WHERE id='${param.id}'

</sql:update>

<c:iftest="${count>=1}">

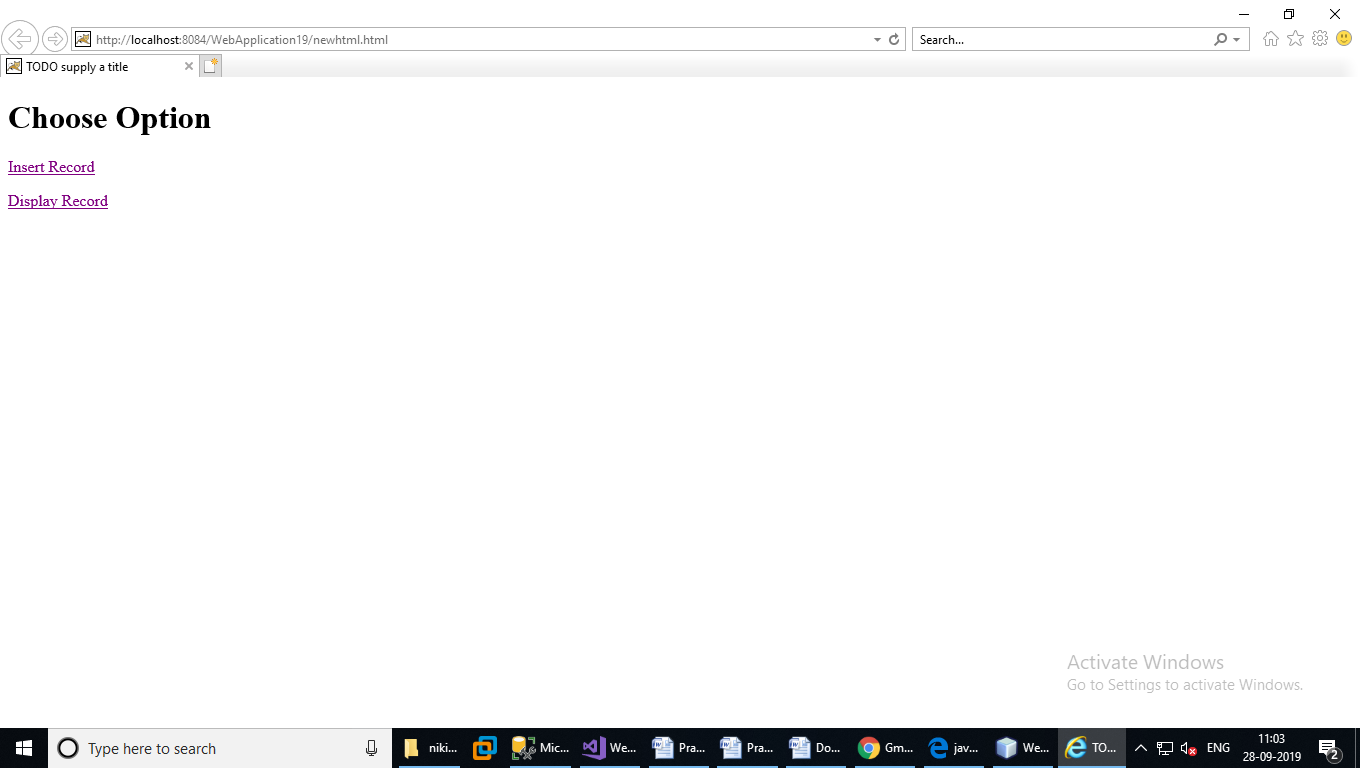
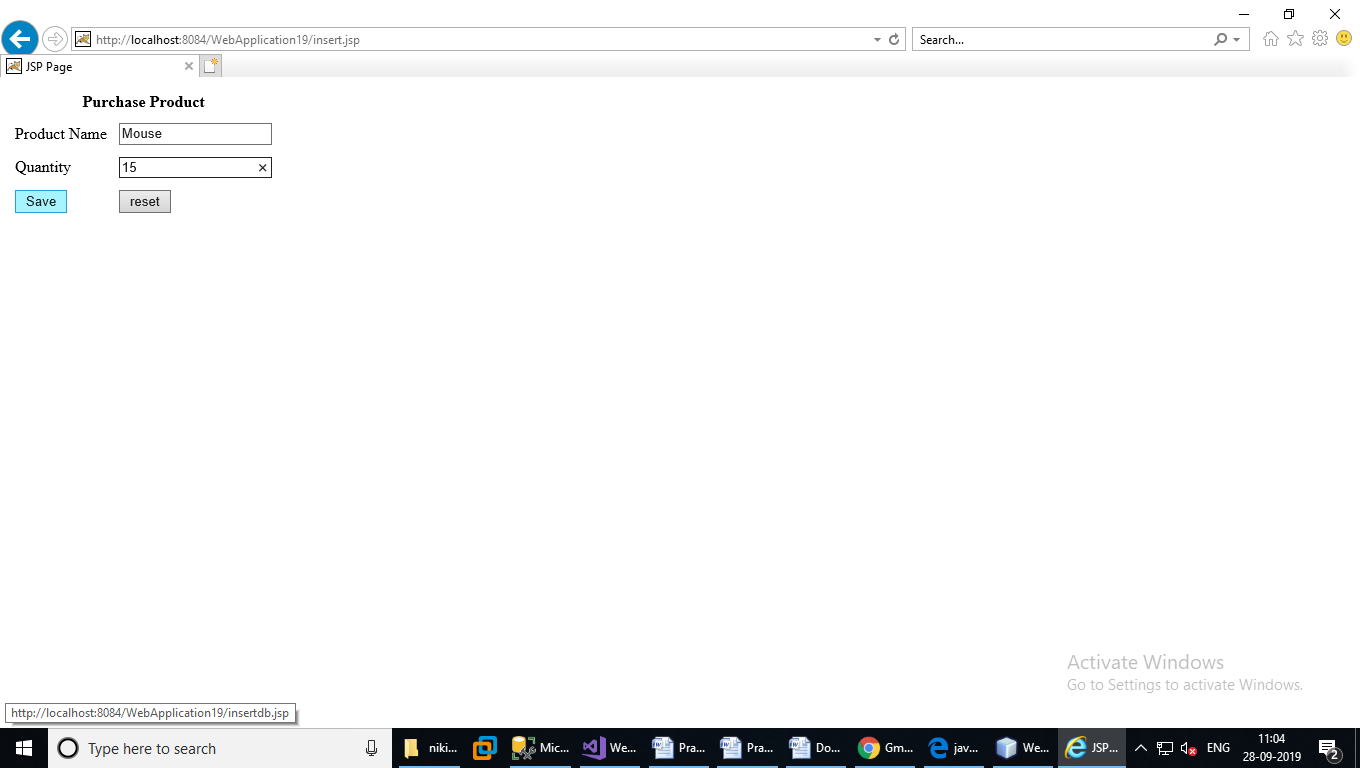
<font size="5"color='green'> Congratulations ! Data deleted successfully.</font>

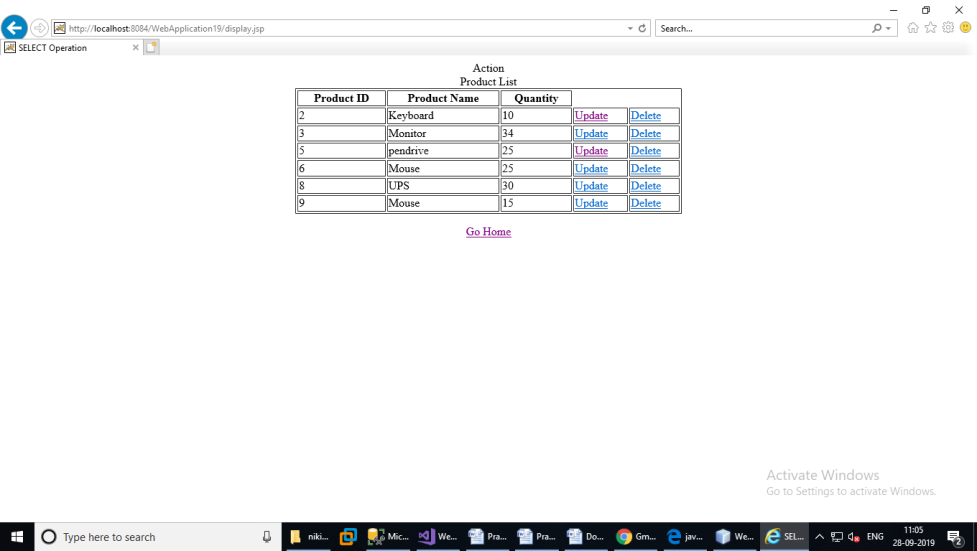
<a href="index.jsp">Go Home</a>

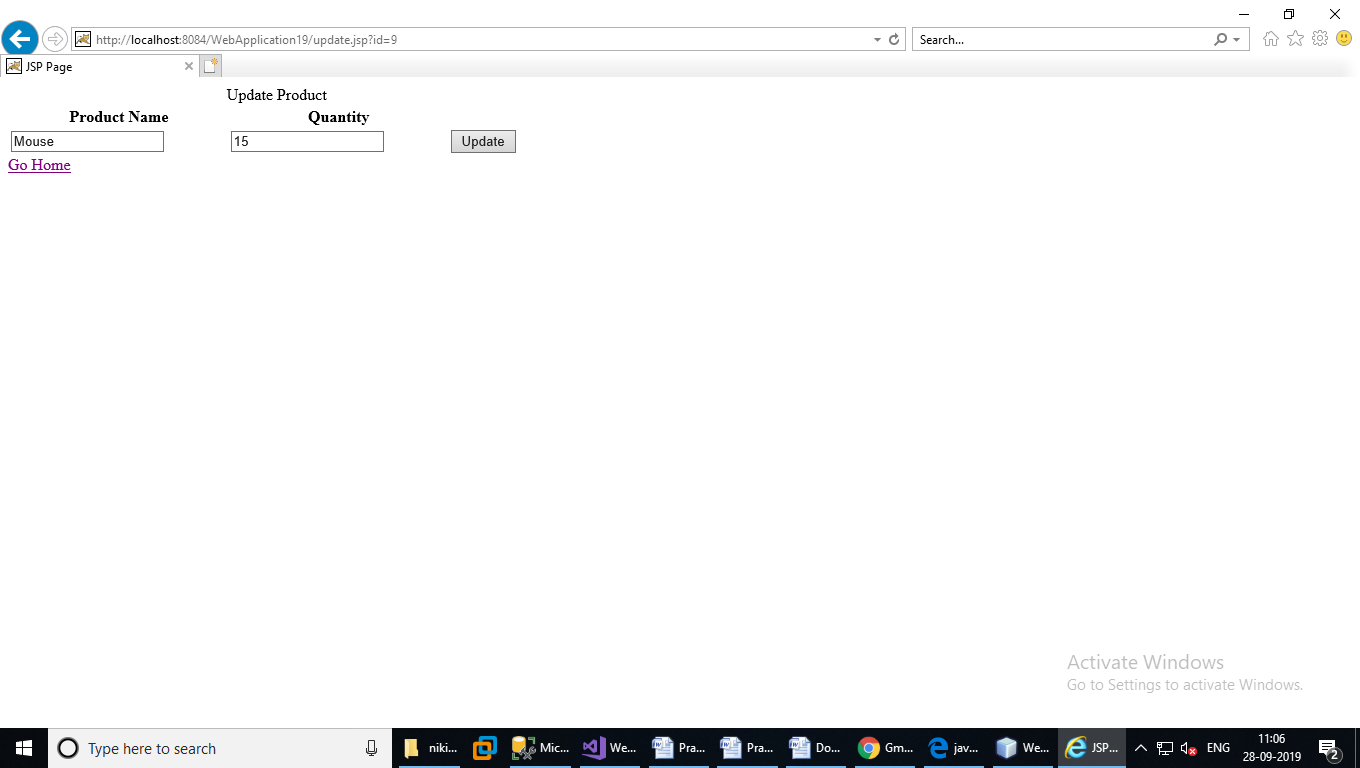
</c:if>

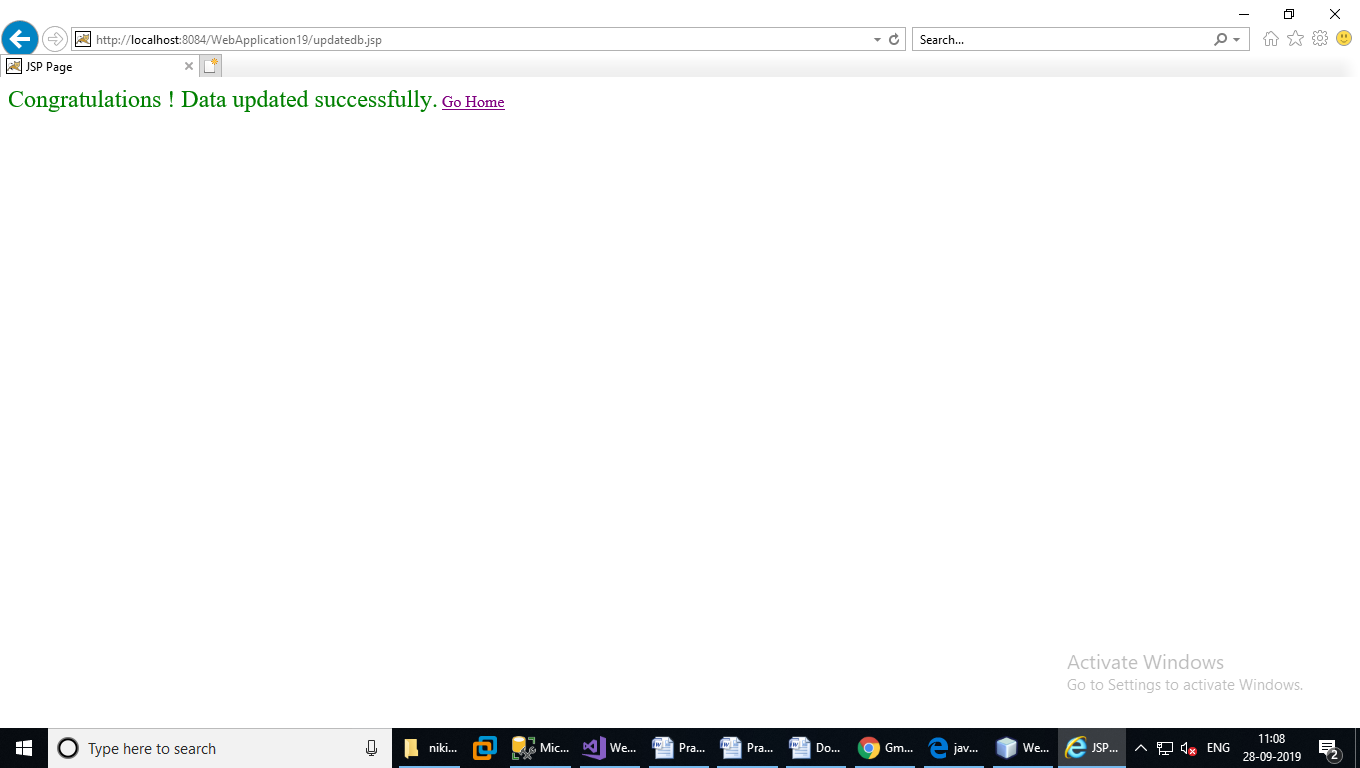
</body>

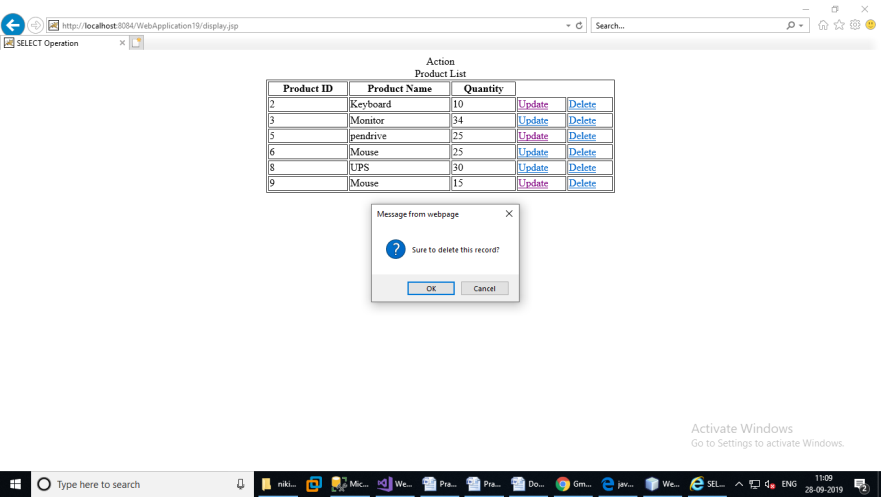
</html>

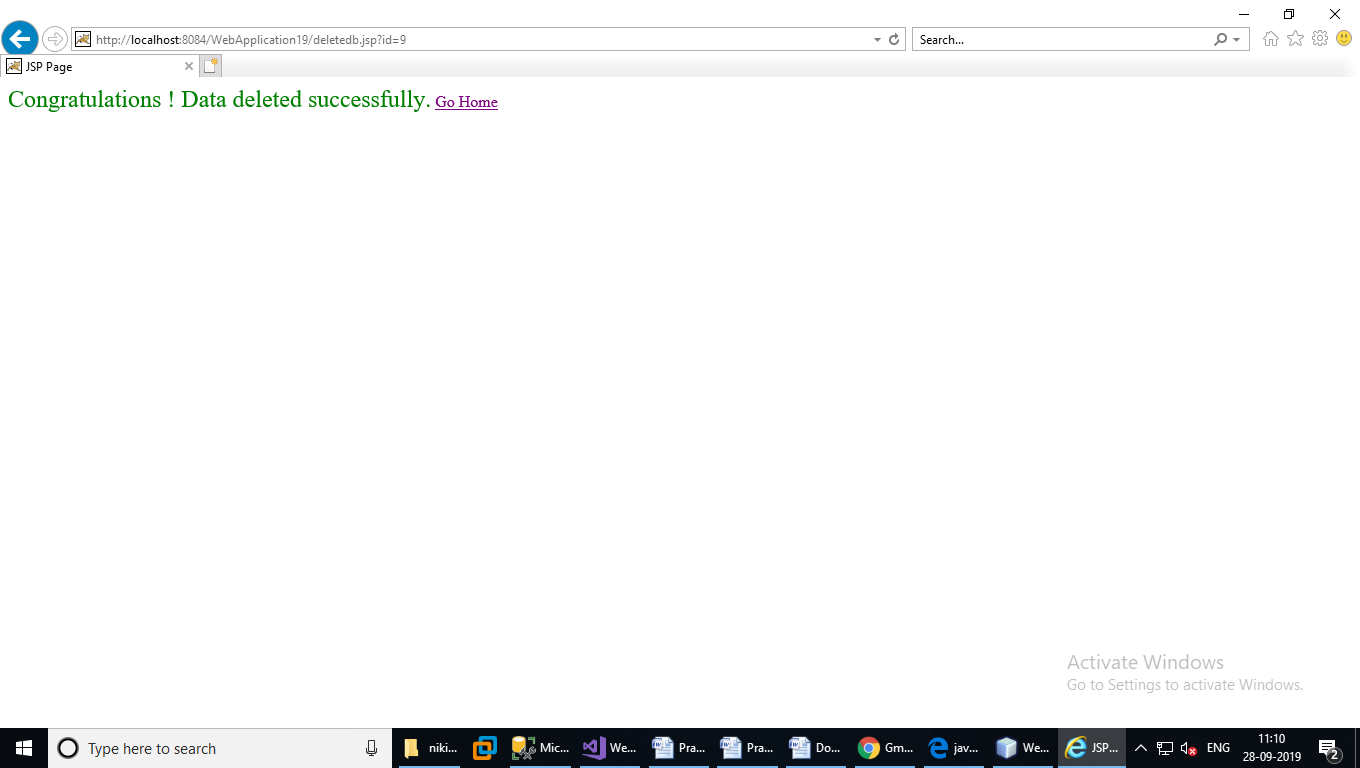
 











**Practical 6: Implement the following EJB applications**

**6A. Create a Currency Converter application using EJB.**

------------------- **index.html ------------------------------------**

<html><head><title>Currency Converter</title></head>

<body>

<form action="CCServlet" >

Enter Amount <input type="text" name="amt"><br> Select Conversion Type

<input type="radio" name="type" value="r2d" checked>Rupees to Dollar

<input type="radio" name="type" value="d2r" >Dollor to Rupees<br>

<input type="reset" ><input type="submit" value="CONVERT" >

</form>

</body>

</html>

-------------------------------- **CCServlet.java** --------------------------

package mypack; import java.io.\*; import javax.servlet.\*;

import javax.servlet.http.\*; import javax.ejb.EJB; import mybeans.CCBean;

public class CCServlet extends HttpServlet { @EJB CCBean obj;

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

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

double amt = Double.parseDouble(request.getParameter("amt")); if(request.getParameter("type").equals("r2d"))

{

out.println("<h1>"+amt+ " Rupees = "+obj.r2Dollor(amt)+" Dollors</h1>");

}

if(request.getParameter("type").equals("d2r"))

{

out.println("<h1>"+amt+ " Dollors = "+obj.d2Rupees(amt)+" Rupees</h1>");

}

}}

**------------------------- CCBean ----------------------------**

Create a stateless session bean

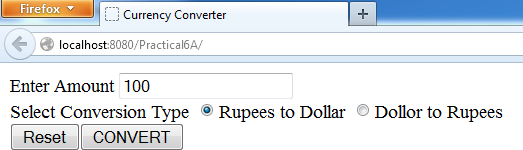
-----------------------------------------------------------------

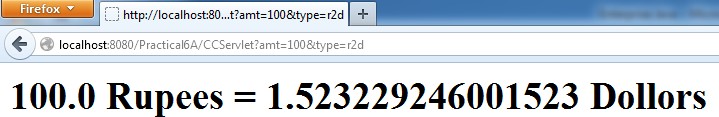
package mybeans;

import javax.ejb.Stateless; @Stateless

public class CCBean { public CCBean(){}

public double r2Dollor(double r){ return r/65.65; } public double d2Rupees(double d){ return d\*65.65; }

}



**6B. Develop a Simple Room Reservation System Application Using EJB.**

Create table rookbook(RoomId varchar(4) PRIMARY KEY, RoomType varchar(20), charges number(5,2), cust varchar(20), mob varchar(20) , status varchar(10))

insert into roombook values('1001','Delux',5000.00,'','','Not Booked')

insert into roombook values('1002','Super Delux',7000.00,'','','Not Booked') insert into roombook values('1003','Suit',9500.00,'','','Not Booked')

insert into roombook values('2001','Delux',5000.00,'','','Not Booked')

insert into roombook values('2002','Super Delux',7000.00,'','','Not Booked') insert into roombook values('2003','Suit',9500.00,'','','Not Booked')

**-------------------------------------RoomBook.html ------------------------------------**

<form action="RBServlet" > Select a room Type

<input type="radio" name="txtType" value="Delux">Delux

<input type="radio" name="txtType" value="Super Delux">Super Delux

<input type="radio" name="txtType" value="Suit">Suit<br> Enter Your Name<input type="text" name="txtCust" ><br> Enter Mobile No.<input type="text" name="txtMob" ><br>

<input type="reset" ><input type="submit" value="Book Room">

</form>

**------------------------------------------RBServlet--------------------------------------**

package mypack; import java.io.\*; import javax.servlet.\*;

import javax.servlet.http.\*; import javax.ejb.EJB; import mybeans.RRBean;

public class RBServlet extends HttpServlet { @EJB RRBean obj;

public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException{

PrintWriter out=response.getWriter(); String rt=request.getParameter("txtType"); String cn=request.getParameter("txtCust"); String cm=request.getParameter("txtMob"); String msg = obj.roomBook(rt, cn, cm);

out.println(msg);

}}

**-------------------------------------------RRBean.java ----------------------------------**

package mybeans;

import javax.ejb.Stateless; import java.sql.\*; @Stateless

public class RRBean {

public RRBean(){}

public String roomBook(String rt, String cn, String cm){ String msg="";

try{ Class.forName("com.mysql.jdbc.Driver");

Connection con = DriverManager.getConnection("jdbc:mysql://localhost/rrdb","root",""); String query="select \* from roombook where RoomType=? and status='Not Booked'"; PreparedStatement pst = con.prepareStatement(query);

pst.setString(1,rt);

ResultSet rs= pst.executeQuery(); if(rs.next()){

String rno=rs.getString(1);

PreparedStatement stm1 = con.prepareStatement("update roombook set cust=? where RoomId=? "); PreparedStatement stm2 = con.prepareStatement("update roombook set mobile=? where RoomId=? "); PreparedStatement stm3 = con.prepareStatement("update roombook set status=? where RoomId=? "); stm1.setString(1,cn); stm1.setString(2,rno);

stm2.setString(1,cm); stm2.setString(2,rno); stm3.setString(1, "Booked"); stm3.setString(2,rno); stm1.executeUpdate();

stm2.executeUpdate(); stm3.executeUpdate();

msg = "Room "+rno+ " Booked <br> Charges = "+rs.getString(3);

}

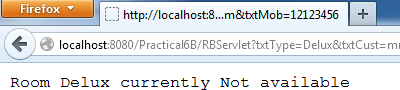
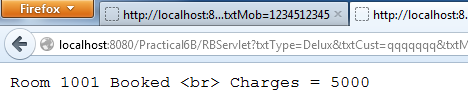
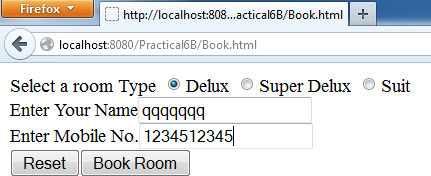
else

{

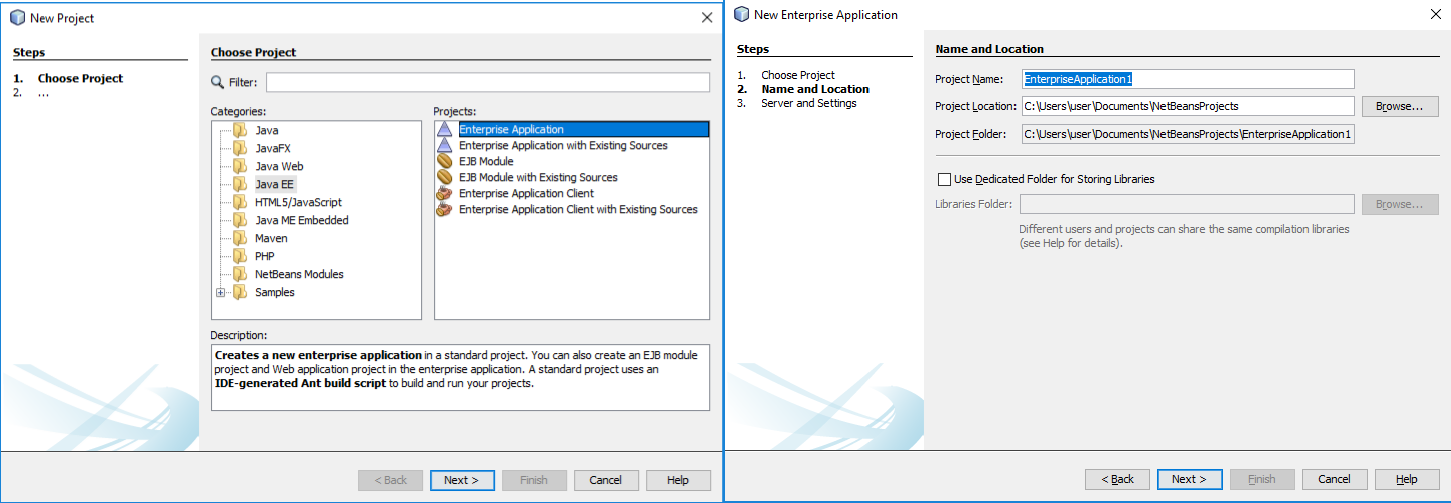
msg = "Room "+rt+ " currently Not available";

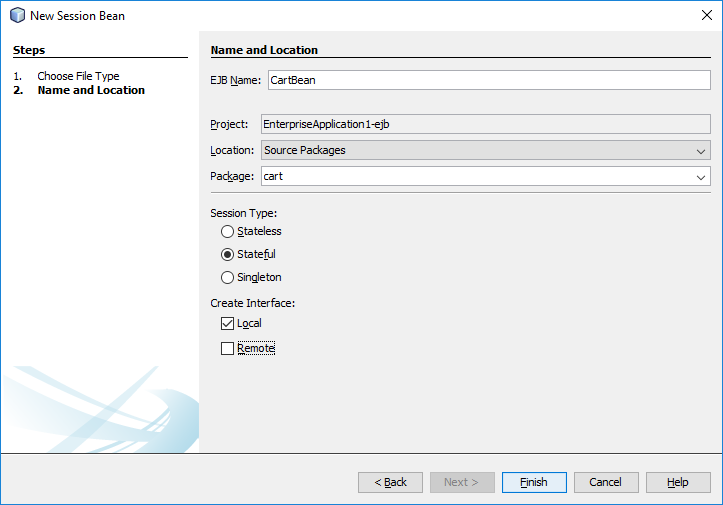
}

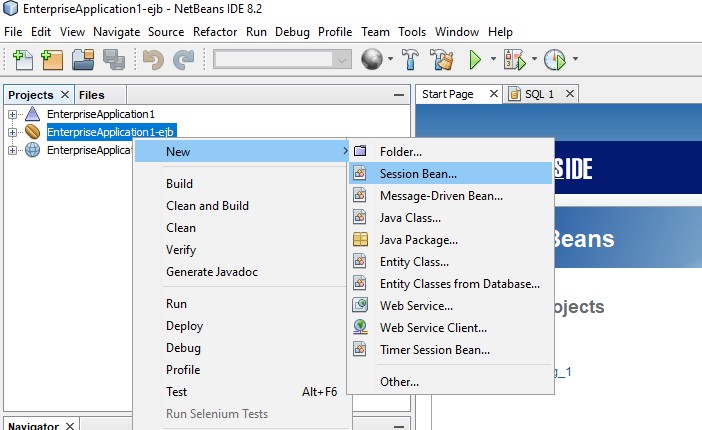
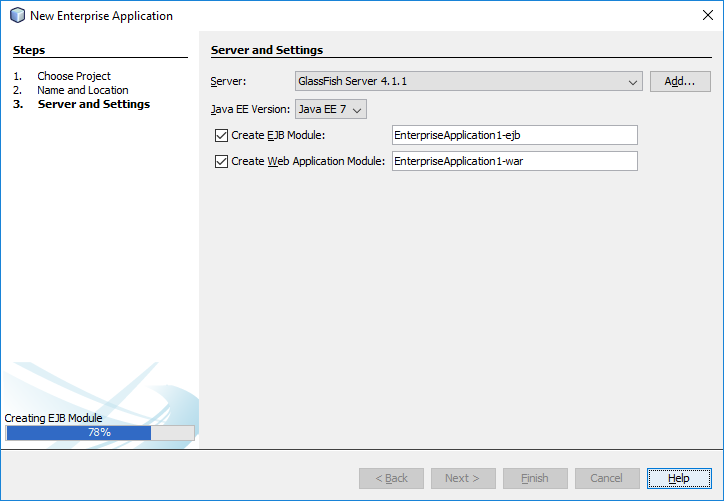
}catch(Exception e){msg=""+e;} return msg;}}



**6C. Develop simple shopping cart application using EJB [Stateful Session Bean].**







# CartBeanLocal.java

package cart;

import java.util.List; import javax.ejb.Local;

@Local

public interface CartBeanLocal {

public void initialize(String person) throws Exception; public void initialize(String person, String id)

throws Exception;

public void addBook(String title);

public void removeBook(String title) throws Exception; public List<String> getContents();

public void remove();}

# CartBean.java

**~~~~~~~~~~~~**

package cart;

import java.util.ArrayList; import java.util.List; import javax.ejb.Remove; import javax.ejb.Stateful;

@Stateful

public class CartBean implements CartBeanLocal { String customerName;

String customerId;

List<String> contents;

public void initialize(String person, String id) throws Exception {

if (person == null) {

throw new Exception("Null person not allowed.");

} else {

customerName = person;

}

if ( person=="ABC" && id=="123") {

customerId = id;

} else {

throw new Exception("Invalid id: " + id);

}

contents = new ArrayList<String>();

}

public void addBook(String title) { contents.add(title);

}

public void removeBook(String title) throws Exception { boolean result = contents.remove(title);

if (result == false) {

throw new Exception(title + " not in cart.");

}}

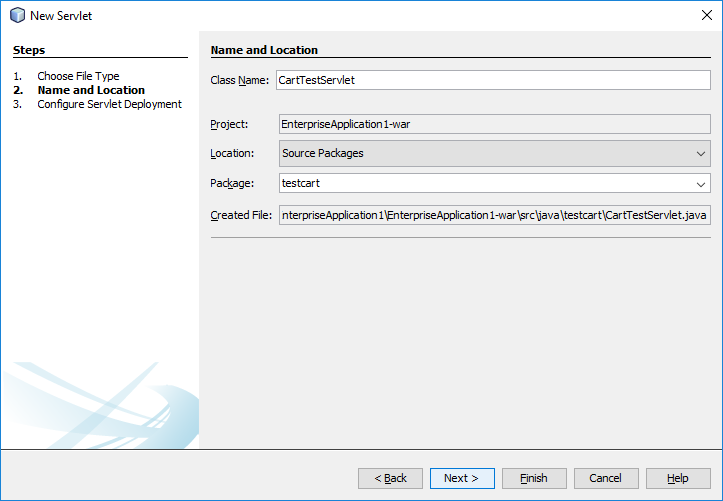
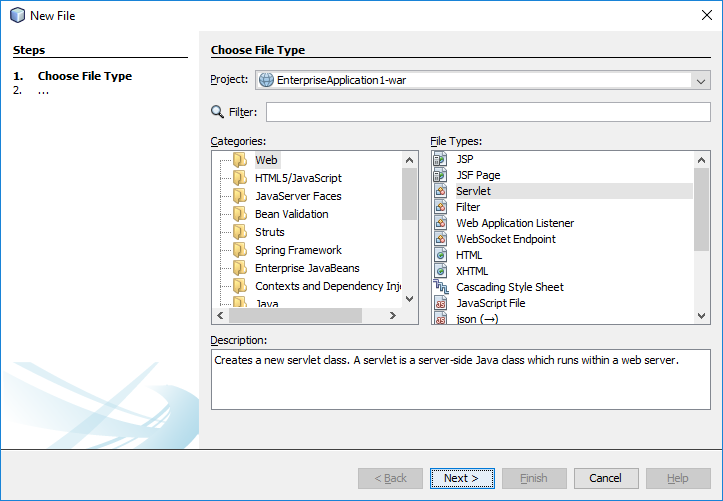
public List<String> getContents() { return contents;

}

@Remove

public void remove() { contents = null;

}



package testcart;

import cart.CartBeanLocal; import java.io.\*;

import java.util.\*;

import java.util.logging.Level; import java.util.logging.Logger; import javax.naming.\*;

import javax.servlet.\*;

import javax.servlet.annotation.WebServlet; import javax.servlet.http.\*;

@WebServlet(name = "CartTestServlet", urlPatterns = {"/CartTestServlet"}) public class CartTestServlet extends HttpServlet {

CartBeanLocal cartBean = lookupCartBeanLocal(); @Override

protected void doGet(HttpServletRequest request, HttpServletResponse response)

throws ServletException, IOException { response.setContentType("text/html;charset=UTF-8"); try{

cartBean.initialize("ABC", "123");

}catch(Exception e){} cartBean.addBook("Java 8 Cookbook"); cartBean.addBook("Enterprise Java 7 "); cartBean.addBook("Java for Dummies"); cartBean.addBook("Learn Java 8");

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

try{

List<String> books = cartBean.getContents(); for( String s : books)

out.println(s +"<br />");

}catch(Exception e){}

}

}

private CartBeanLocal lookupCartBeanLocal() { try {

Context c = new InitialContext();

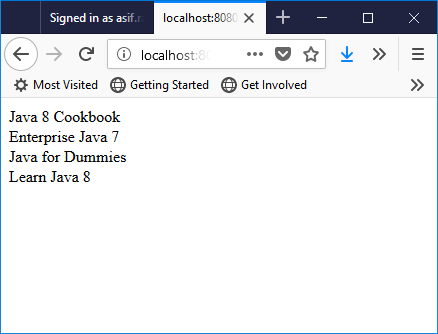
return (CartBeanLocal) c.lookup("java:global/EnterpriseApplication1/EnterpriseApplication1- ejb/CartBean!cart.CartBeanLocal");

} catch (NamingException ne) { Logger.getLogger(getClass().getName()).log(Level.SEVERE, "exception caught", ne); throw new RuntimeException(ne);

}

}

}



**Practical 7: Implement the following EJB applications with different types of Beans**

**7A. Develop simple EJB application to demonstrate Servlet Hit count using Singleton Session Beans.**

# Organization of file in Project Folder

**----------------------- CounterBean.java ------------------------------------**

package counter.ejb; import javax.ejb.Singleton;

@Singleton

public class CounterBean { private int hits = 1;

// Increment and return the number of hits public int getHits() {

return hits++;

}

}

**------------------------------------ Count.java ------------------------------------**

package mypack;

import java.io.Serializable; import javax.ejb.EJB;

import javax.enterprise.context.ConversationScoped; import javax.inject.Named;

import counter.ejb.CounterBean; @Named("count") @ConversationScoped

public class Count implements Serializable { @EJB

private CounterBean counterBean; private int hitCount;

public Count() { this.hitCount = 0;

}

public int getHitCount() {

hitCount = counterBean.getHits(); return hitCount;

}

public void setHitCount(int newHits) { this.hitCount = newHits;

}

}

**--------------------------------------------- HitCountPage.xhtml -----------------------**

<?xml version='1.0' encoding='UTF-8' ?>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "[http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd"](http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd)>

<html xmlns="[http://www.w3.org/1999/xhtml"](http://www.w3.org/1999/xhtml) xmlns:h="[http://xmlns.jcp.org/jsf/html"](http://xmlns.jcp.org/jsf/html)>

<h:head>

<title>Page Hit Counter Using Singleton Session Bean ~~~~ </title>

</h:head>

<h:body>

<h1>Welcome to Hit Count Page</h1> Page was hit #{count.hitCount} times

</h:body>

</html>

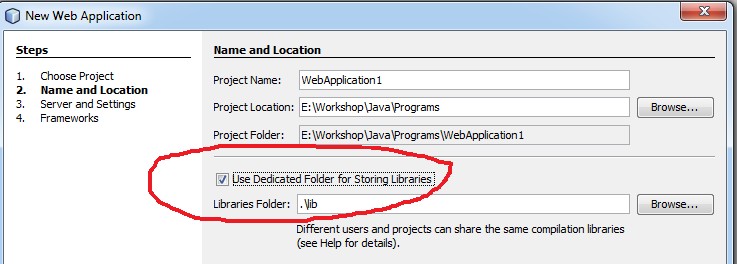
# Run this file to get the output

**Practical 8: Implement the following JPA applications.**

**8A. Develop a Guestbook Application Using JPA. JPA Practical using GuestBook**

Steps:

1. Create Web Application with dedicated folder for Library



1. Add Simple java class or Persitent Entity class from Database (code below GuestBook.java)
2. Add SQL Connector Jar file to Library
3. Create Persistence Unit using jdbc connection to MySQL database
4. Create the JSP files (codes given below)
5. Run the Application.

**GuestBook.java**

**~~~~~~~~~~~~~** package asif;

import javax.persistence.\*;

@Entity @Table(name="GuestBook") public class GuestBook {

@Id

@GeneratedValue(strategy = GenerationType.IDENTITY) @Column(name="VisitorNo", unique=true, updatable=false) private Integer visitorNo;

@Column(name="VisitorName") private String visitorName; @Column(name="Message") private String message; @Column(name="MessageDate") private String messageDate;

public GuestBook() {

}

public Integer getVisitorNo() { return visitorNo;

}

public void setVisitorNo(Integer visitorNo) { this.visitorNo = visitorNo;

}

public String getVisitorName() { return visitorName;

}

public void setVisitorName(String visitorName) { this.visitorName = visitorName;

}

public String getMessage() { return message;

}

public void setMessage(String message) { this.message = message;

}

public String getMessageDate() { return messageDate;

}

public void setMessageDate(String messageDate) { this.messageDate = messageDate;

}

}

**index.jsp**

**~~~~~~~~~~**

<%@page contentType="text/html" pageEncoding="UTF-8"%>

<!DOCTYPE html>

<html>

<body style="background-color: pink;"> Sign the Guest Book

<form action="GuestBookView.jsp" method="post">

Visitor Name: <input name="guest" maxlength="25" size="50" /> Message: <textarea rows="5" cols="36" name="message"></textarea>

<input type="submit" name="btnSubmit" value="Submit" />

</form>

</body>

</html>

**GuestBookView.jsp**

**~~~~~~~~~~~~~~~~~**

<%@page import="java.util.\*,javax.persistence.\*,asif.GuestBook" %>

<%@page contentType="text/html" pageEncoding="UTF-8"%>

<!DOCTYPE html>

<%!

private EntityManagerFactory entityManagerFactory; private EntityManager entityManager;

private EntityTransaction entityTransaction; List<GuestBook> guestbook;

%>

<%

entityManagerFactory = Persistence.createEntityManagerFactory("JPAApplication1PU"); entityManager = entityManagerFactory.createEntityManager();

String submit = request.getParameter("btnSubmit"); if(submit != null && ("Submit").equals(submit)) {

try {

String guest = request.getParameter("guest"); String message = request.getParameter("message");

String messageDate = new java.util.Date().toString();

GuestBook gb = new GuestBook(); gb.setVisitorName(guest); gb.setMessage(message); gb.setMessageDate(messageDate);

entityTransaction = entityManager.getTransaction(); entityTransaction.begin(); entityManager.persist(gb); entityTransaction.commit();

} catch (RuntimeException e) {

if(entityTransaction != null) entityTransaction.rollback(); throw e;

}

response.sendRedirect("GuestBookView.jsp");

}

try {

guestbook = entityManager.createQuery("SELECT g from GuestBook g").getResultList();

} catch (RuntimeException e) { } entityManager.close();

%>

<html>

<body>

View the Guest Book <b>Click <a href="index.jsp"> here</a> to sign the guestbook.</b>

<hr />

<%

Iterator iterator = guestbook.iterator(); while (iterator.hasNext()) {

GuestBook obj = (GuestBook) iterator.next();

%>

On <%= obj.getMessageDate() %>,<br />

<b><%= obj.getVisitorName() %>:</b>

<%= obj.getMessage() %>

<br /><br />

<%

}

%>

</body>

</html>

