

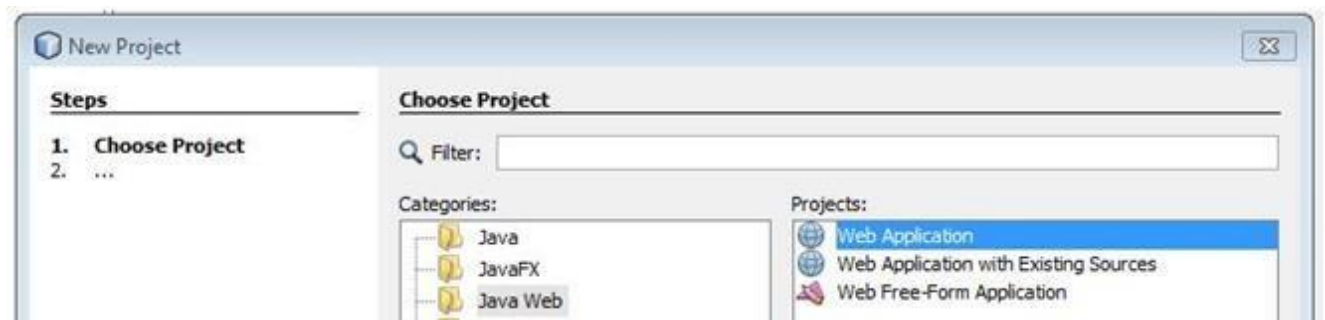
Requirements:

1. JDK 8u181
2. Netbeans 8.1 or higher
3. MySql 5.5 or higher

1a. Create a simple calculator application using servlet.



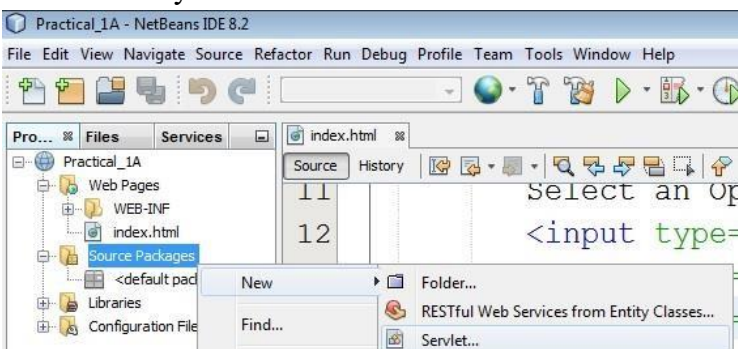
Create a new project



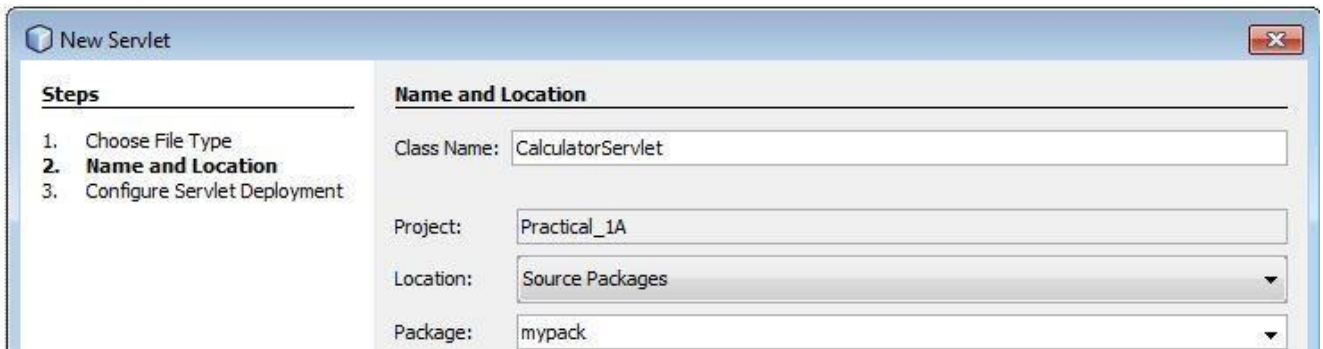
Select java web ⑦ web Application

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"

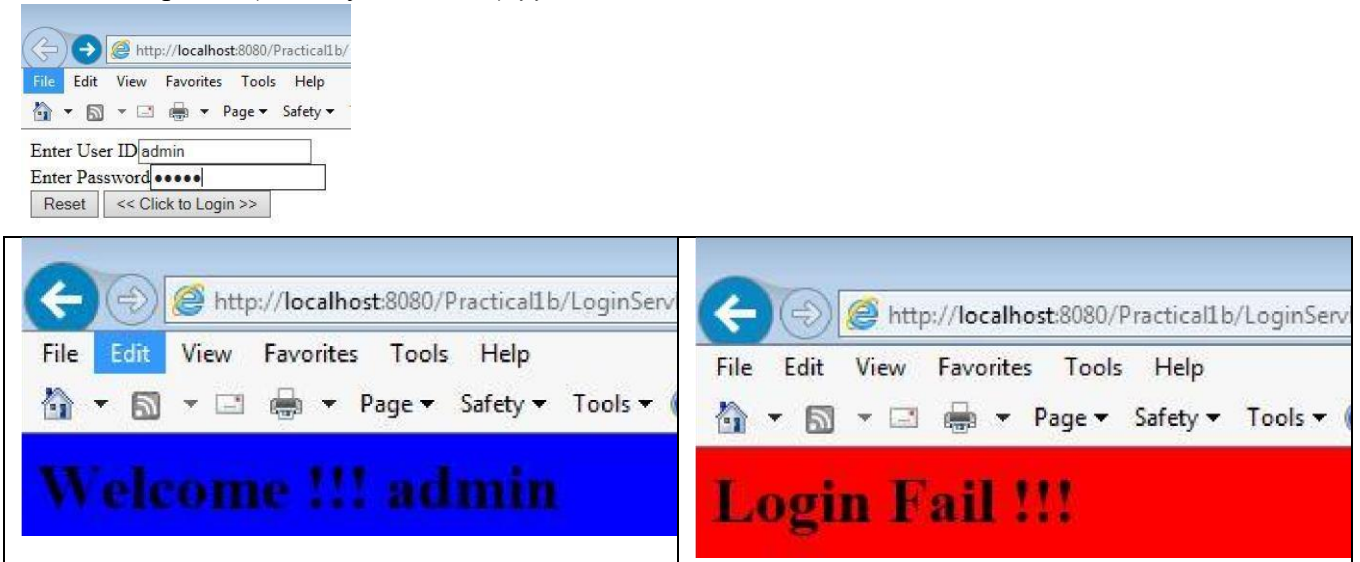
index.html

```
<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>");}}
```



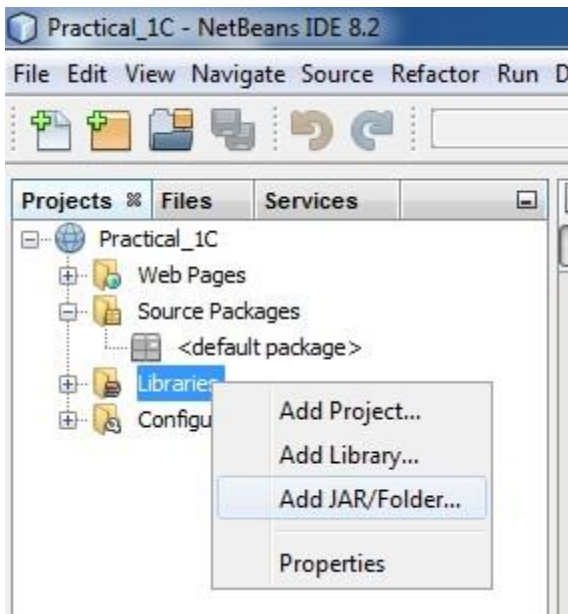
1c. Create a registration servlet in Java using JDBC. Accept the details such as Username, Password, Email, and Country from the user using HTML Form and store the registration details in the database.

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 ⑦ <<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

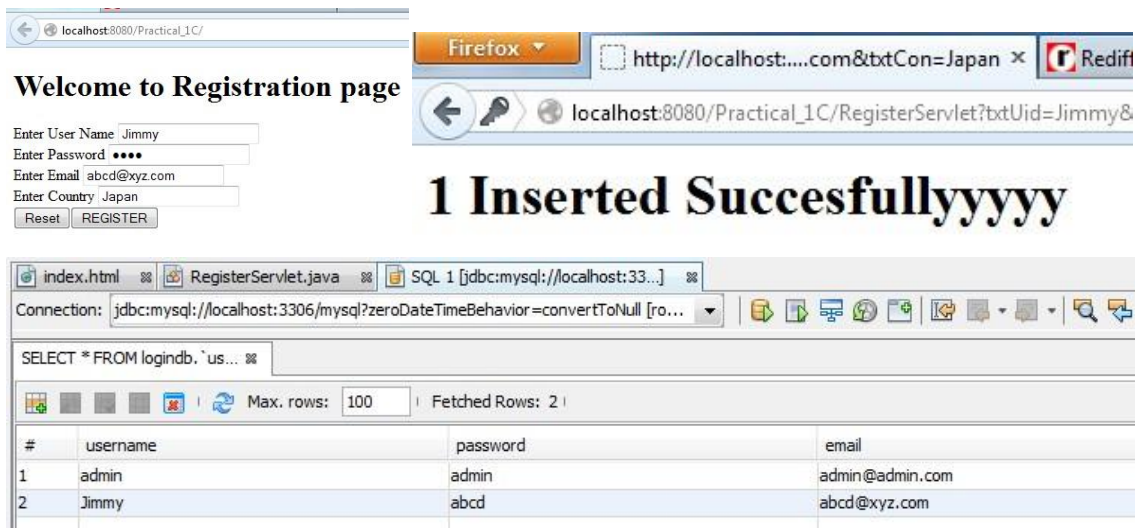
```
package mypack;
import java.io.*; import
java.sql.*; import
javax.servlet.*;
import javax.servlet.http.*;

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:3306/logindb");
    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 Successfullyyyyy");
} catch (Exception e) {out.println(e);}
}
}

```



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>");
    }
}

```

```

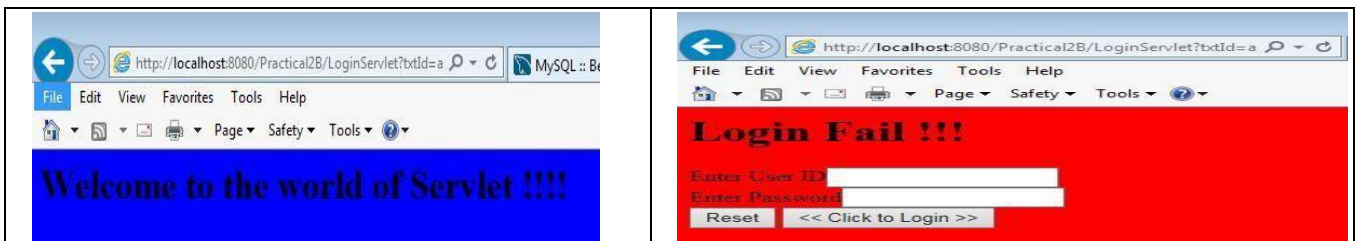
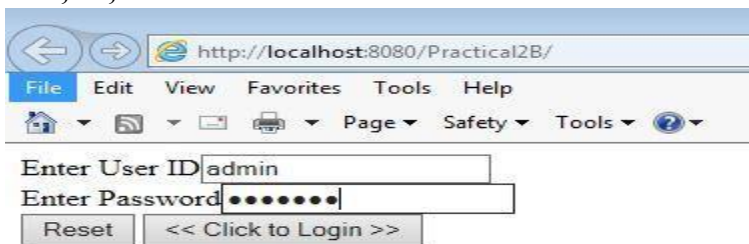
WelcomeServlet.java package mypack; import
java.io.IOException; import
java.io.PrintWriter; import
javax.servlet.ServletException; import
javax.servlet.http.HttpServlet; import
javax.servlet.http.HttpServletRequest; import
javax.servlet.http.HttpServletResponse; import
javax.servlet.RequestDispatcher; 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>");
} }

```



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

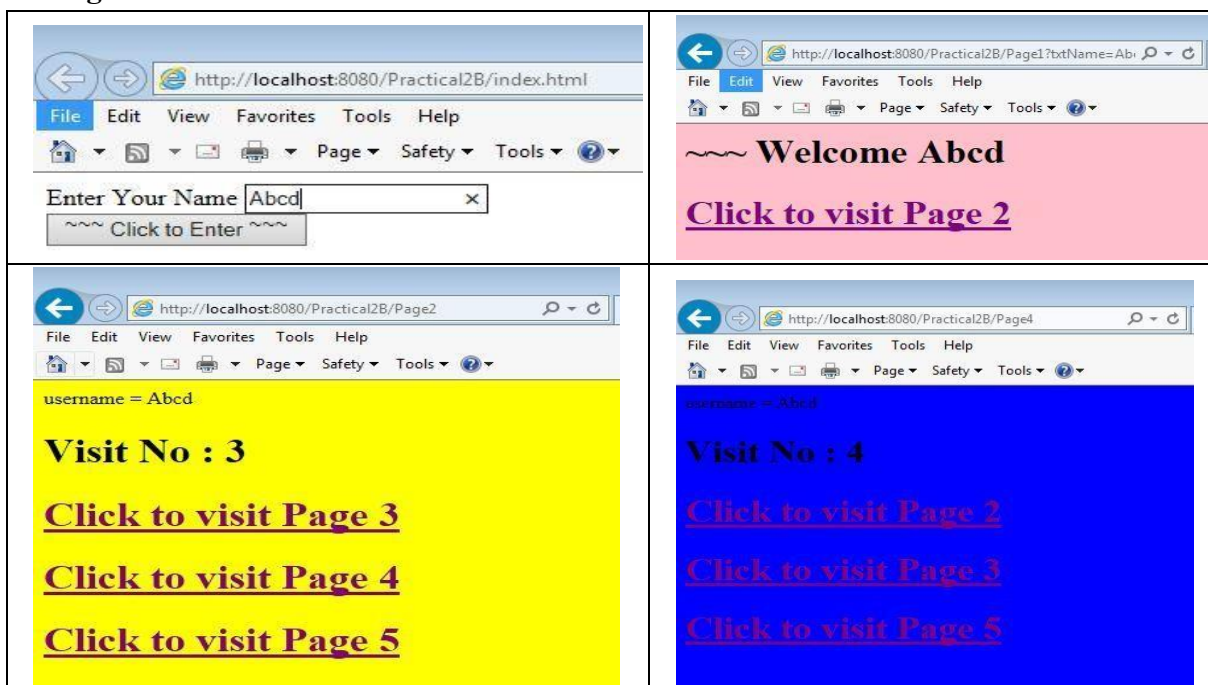
```
mypack; import
java.io.*;
import javax.servlet.ServletException;
import javax.servlet.http.*; public class
Page2 extends HttpServlet {
```

```

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>");
    } }

```

Repeat the code from Page2.java for Page3.java, Page4.java and Page5.java with relevant changes.



Important Note: - Run this program on one machine as server and student's machine as client using proxy setting to demonstrate tracking of individual visitor's activity by server using cookie

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>");
}
}
```

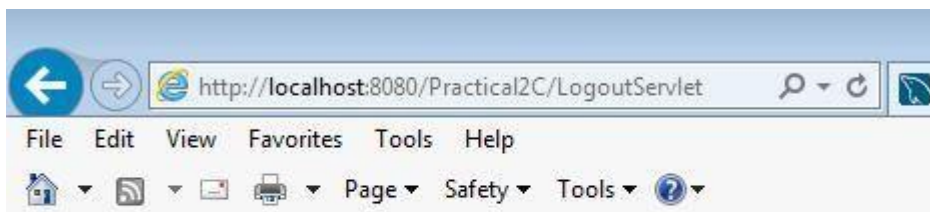
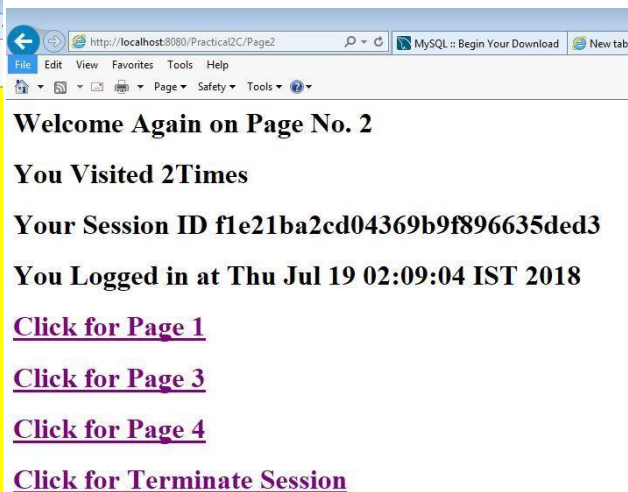
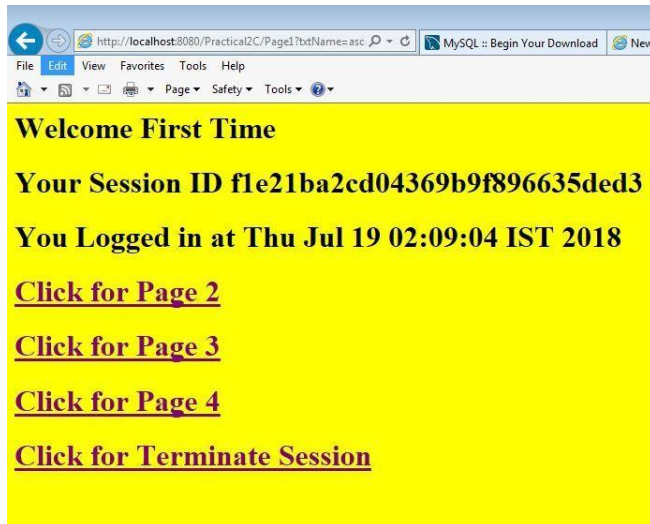
Repeat the code from Page2.java in Page3.java and Page4.java with relevant changes.

```
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;
e; 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>");
}
}

```



You are Logged out now.....

Important Note: - Run this program on one machine as server and student's machine as client using proxy setting to demonstrate tracking of individual visitor's activity by server.

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

```

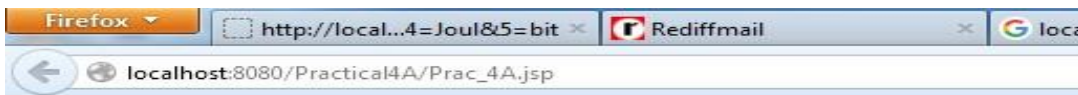
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<html><head><title>JSP Page</title></head>
<body>
<h1>Use of Intrinsic Objects in JSP</h1>
<h1>Request Object </h1>
    Query String <%=request.getQueryString() %><br>

```

```

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>

```



Use of Intrinsic Objects in JSP

Request Object

```

Query String null
Context Path /Practical4A
Remote Host 0:0:0:0:0:0:1

```

Response Object

```

Character Encoding Type UTF-8
Content Type text/html;charset=UTF-8
Locale en_US

```

Session Object

```

ID 39a6dd44e151027609e21c8b80c6
Creation Time Thu Jul 19 23:03:19 IST 2018
Last Access Time Thu Jul 19 23:09:20 IST 2018

```

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-----

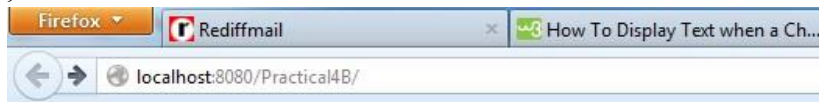
```
-- package mypack;
```

```
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+="

```



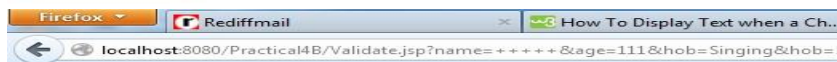
Enter Your Name

Enter Your Age 111

Select Hobbies ☒ Singing ☒ Reading Books ☐ Playing Football

Enter E-mail aaa@bb.com

Select Gender ☐ Male ☒ Female ☐ Other



Validation Page

Enter Your Name

Enter Your Age

Select Hobbies ☐ Singing ☐ Reading Books ☐ Playing Football

Enter E-mail

Select Gender ☐ Male ☐ Female ☐ Other

Enter First Name
Age Invalid

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:3306/logindb");
            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 FFFFFAAAIILLLLL !!!!");
        }
    }
    %><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>

```







SELECT * FROM logindb, 'us...' 88

Max. rows: 100 | Fetched Rows: 3 |

#	username	password	email	country
1	admin	admin	admin@admin.com	India
2	admin123	admin123	admin@conio.h	India

----- 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:3306/logindb");
        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 SUCCESSFULL ~~~ </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>

```

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" >

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

Enter age<input type="text" name="txtAge" >

Enter Salary<input type="text" name="txtSal" >

<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:3306/empdb");
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>

```

SELECT * FROM emp LIMIT 1... %				
Max. rows: 100 Fetched Rows: 5				
#	empid	ename	salary	age
1	1	aaaa	12345	11
2	2	bbbb	2222	22
3	3	cccc	12121	33
4	4	dddd	123123	44
5	5	eeee	12123	55

SELECT * FROM emp LIMIT 1... %				
Max. rows: 100 Fetched Rows: 5				
#	empid	ename	salary	age
1	1	aaaa	54321	99
2	2	bbbb	2222	22
3	3	cccc	12121	33
4	4	dddd	123123	44

5b. Create a JSP page to demonstrate the use of Expression language.

<< any example to demonstrate the use of EL like calculator or any formulas etc.... >>

5c. 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);
```

1. 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>
```

2. insert.jsp

```
<%@page contentType="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>
    <formaction="insertdb.jsp"method="post">
      <tableborder="0"cellspacing="2"cellpadding="5">
        <thead>
          <tr>
            <th colspan="2">Purchase Product</th>
          </tr>
        </thead>
        <tbody>
          <tr>
            <td><label>Product Name</label></td>
            <td><inputtype="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><input type="reset" value="reset"/></td>
        </tr>
    </tbody>
</table>
</form>
<font color="red"><c:if test="${not empty param.errMsg}">
    <c:out value="${param.errMsg}"/>
    <a href="index.jsp">Go Back</a>
</c:if></font>
<font color="green"><c:if test="${not empty param.susMsg}">
    <c:out value="${param.susMsg}"/>
    <a href="index.jsp">Go Back</a>
</c:if></font>

</body>
</html>

```

3. 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:if test="${empty param.pname or empty param.qty}">
            <c:redirect url="insert.jsp">
                <c:param name="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" user="root"
            password="pass"/>

        <sql:update dataSource="${dbsource}" var="result">
            INSERT INTO product(pname, quantity) VALUES (?,?);
            <sql:param value="${param.pname}"/>
            <sql:param value="${param.qty}"/>
        </sql:update>
        <c:if test="${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>
```

4. 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:setDataSourcevar="dbsource"driver="com.mysql.jdbc.Driver"
url="jdbc:mysql://localhost/sampleDB"
password="pass"/>
        <sql:querydataSource="${dbsource}"var="result">
            SELECT * from product;
        </sql:query>
        <center>
            <form>
                <tableborder="1"width="40%">
                    <caption>Product List</caption>
                    <tr>
                        <th>Product ID</th>
                        <th>Product Name</th>
                        <th>Quantity</th>
                        <thcolspan="2">Action</th>
                    </tr>
                    <c:forEachvar="row"items="${result.rows}">
                        <tr>
                            <td><c:outvalue="${row.id}"/></td>
                            <td><c:outvalue="${row.pname}"/></td>
                            <td><c:outvalue="${row.quantity}"/></td>
                            <td><ahref="update.jsp?id=<c:out value="${row.id}"/>">Update</a></td>
                            <td><ahref="javascript:confirmGo('Sure to delete this
record?', 'deletedb.jsp?id=<c:out value="${row.id}"/>')">Delete</a></td>
```

```
        </tr>
      </c:forEach>
    </table>
  </form>
  <a href="index.jsp">Go Home</a>
</center>
</body>
</html>
```

5. update.jsp

```
<%@page contentType="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>
    <meta http-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"          user="root"
password="pass"/>

    <sql:query dataSource="${dbsource}" var="result">
      SELECT * from product where id=?;
      <sql:param value="${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:forEach var="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>
      <a href="index.jsp">Go Home</a>
    </form>
  </body>
</html>
```

6. updatedb.jsp

```
<%@page contentType="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"
user="root" password="pass"/>
    <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">
      <fontsize="5"color='green'> Congratulations ! Data updated
successfully.</font>
      <a href="index.jsp">Go Home</a>
    </c:if>
  </body>
</html>

```

7. deletedb.jsp

```

<%@page contentType="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" user="root"
password="pass"/>
    <sql:updatedataSource="{dbsource}"var="count">
      DELETE FROM product
      WHERE id='{param.id}'
    </sql:update>
    <c:iftest="{count}>1">
      <fontsize="5"color='green'> Congratulations ! Data deleted
successfully.</font>
      <a href="index.jsp">Go Home</a>
    </c:if>
  </body>
</html>

```

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; }
```


}



Firefox ▾ Currency Converter +

localhost:8080/Practical6A/

Enter Amount

Select Conversion Type ☒ Rupees to Dollar ☐ Dollor to Rupees



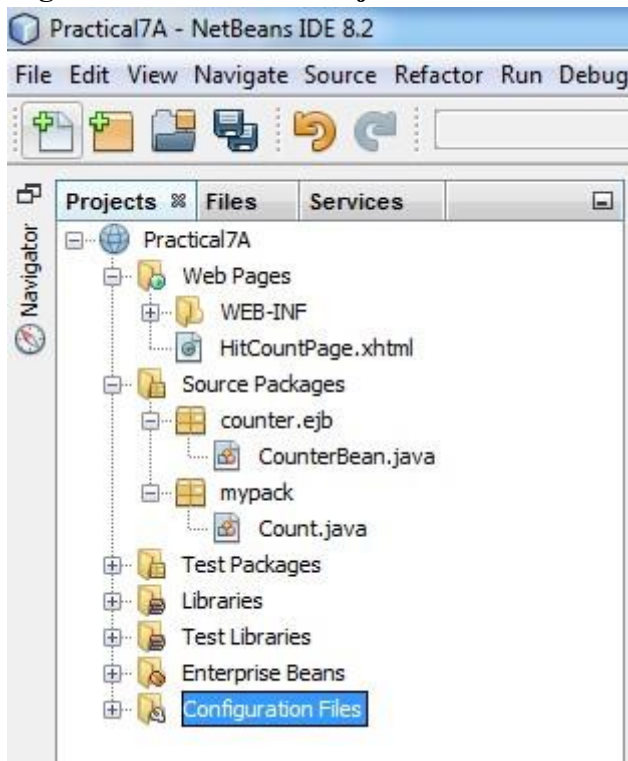
Firefox ▾ http://localhost:80...t?amt=100&type=r2d +

localhost:8080/Practical6A/CCServlet?amt=100&type=r2d

100.0 Rupees = 1.523229246001523 Dollors

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;
}

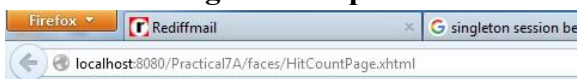
public int getHitCount() {
hitCount = counterBean.getHits();
return hitCount;
}

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">
<html xmlns="http://www.w3.org/1999/xhtml"
xmlns:h="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



Welcome to Hit Count Page

Page was hit 4 times

7c. Develop simple Marks Entry Application to demonstrate accessing Database using EJB.

<Any application to the best of Teachers assumption >

Q.7 c)_ Develop simple Marks Entry Application to demonstrate accessing Database using EJB.

CODE:

Step 1:

Create web application as pract7CMarksApp.

Step 2:

Create database marksdb Step 3:

Create tables marks in marksdb database as:

create table marks (id int primary key auto_increment, sname varchar(35), marks1 int, marks2 int, marks3 int); step 4: **index.jsp**

```
<%@page import="ejb.MarksEntryBean"%>
<%@page import="javax.naming.InitialContext"%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<%!
private static MarksEntryBean obj; public void

jspInit()

{
    try
    {
        InitialContext ic=new InitialContext();

obj=(MarksEntryBean)ic.lookup("java:global/Pract7CMarksApp/MarksEntryBean");

    }
    catch(Exception e)
    {
        System.out.println(e);
    }
}
%>
<%
    if(request.getParameter("InsertMarks")!=null)
    {
        String sname;        int marks1, marks2, marks3;

sname = request.getParameter("sname");

marks1=Integer.parseInt(request.getParameter("m1"));
```

```

marks2=Integer.parseInt(request.getParameter("m2"));

marks3=Integer.parseInt(request.getParameter("m3"));

obj.addMarks(sname,marks1,marks2,marks3);

out.print("Marks entered successfully..!!!!");

    }
%>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>JSP Page</title>
    </head>
    <body>
        <h2>Enter Details</h2>
        <form name="result" method="post">
            Enter student's name: <input type='text' name="sname" /><br>
            Enter subject 1 marks: <input type='text' name="m1" /><br>
            Enter subject 2 marks: <input type='text' name="m2" /><br>
            Enter subject 3 marks: <input type='text' name="m3" /><br>
            <input type='submit' name="InsertMarks" /><br>
        </form>
    </body>
</html>

```

Step 4:

create stateful java bean as select source package -> session bean -> class name -> MarksEntryBean -> package -> ejb -> bean type-> stateful -> don't select Local / Remote

-> finish. package ejb; import java.sql.*; import javax.ejb.Stateful;

```
@Stateful      public      class
```

```
MarksEntryBean { String sname; int
```

```
m1,m2,m3;
```

```
Connection con=null;
```

```
Statement st=null; String query=""; public void
```

```
addMarks(String sname,int m1,int m2,int m3)
```

```
{
    try
```

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

con=DriverManager.getConnection("jdbc:mysql://localhost:3306/marksdb", "root","tiger");

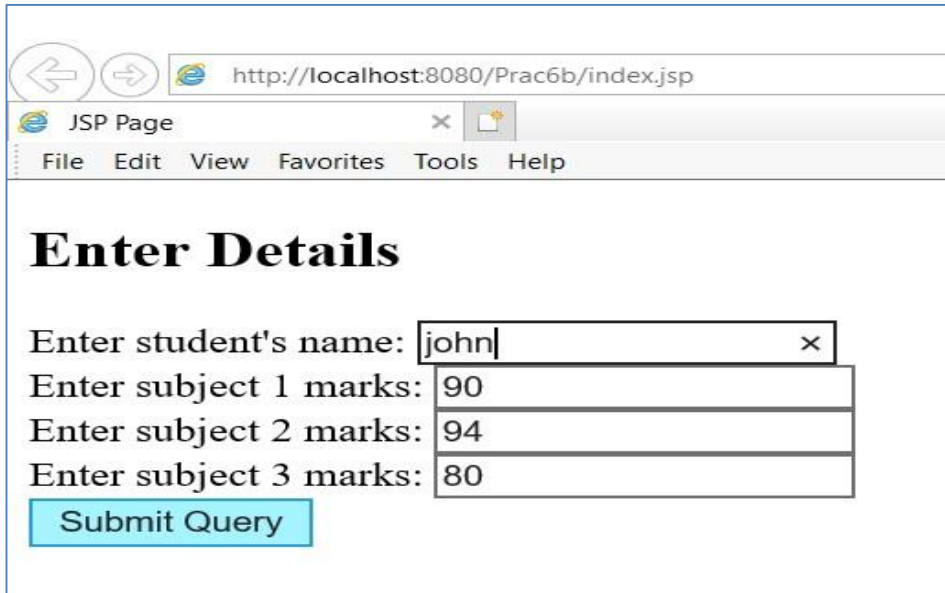
st=con.createStatement();

    query="insert into marks (sname,marks1,marks2,marks3) values
('"+sname+"','"+m1+"','"+m2+"','"+m3+"')";

st.executeUpdate(query);

    System.out.print("Marks entered sucessfully!!");
}
catch(Exception e){System.out.println(e);}
}
}
```


OUTPUT:



http://localhost:8080/Prac6b/index.jsp

JSP Page

File Edit View Favorites Tools Help

Enter Details

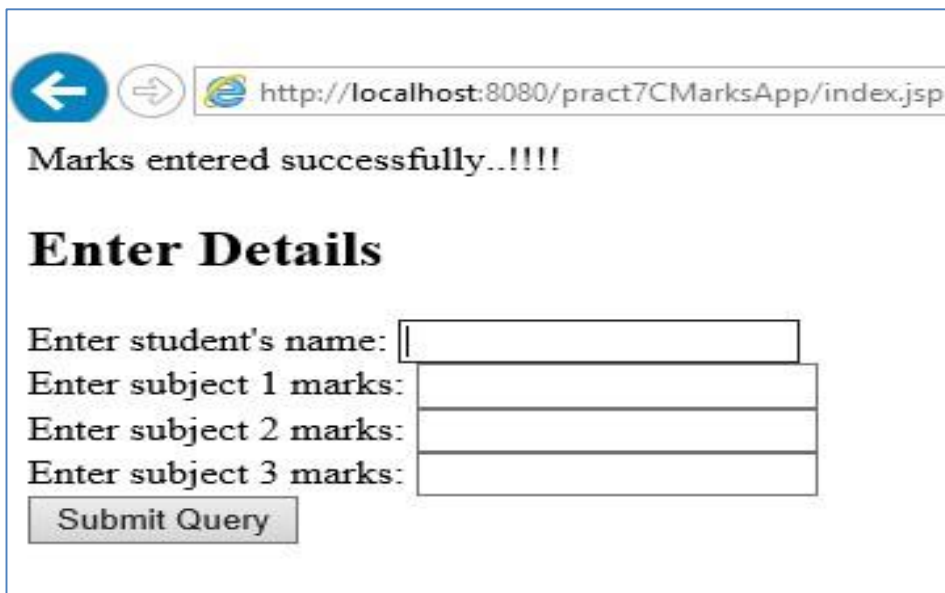
Enter student's name: john

Enter subject 1 marks: 90

Enter subject 2 marks: 94

Enter subject 3 marks: 80

Submit Query



http://localhost:8080/pract7CMarksApp/index.jsp

Marks entered successfully..!!!!

Enter Details

Enter student's name:

Enter subject 1 marks:

Enter subject 2 marks:

Enter subject 3 marks:

Submit Query