

Exam Seat No:



Satish Pradhan Dnyanasadhana College Thane

Certificate

This is to certify that Mr. **Vaibhav Sanjay Mane** of **T. Y. B.Sc. Information Technology (Semester-V)** Class has been successfully completed all the practical work in subject **Advance Java** under the guidance of **Asst.Prof. Uzma Shaikh** during Year 2024-25 in partial fulfillment of Information Technology Practical Examination conducted by University of Mumbai.

Subject in charge

Head of the Department

Date:-

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Practical no. 1**A. Create a simple calculator application using servlet.**

Step 1: start the Netbeans Application and select **File-> New Project** to create a new Web application project.

Step 2: New project dialog box appears. **Select Java Web** option available under categories list and web application option under project list.

Step 3: In new web application dialog box we have to give the name of our application as **"ServCalculator"**.

Step 4: After Clicking Next the second dialog box of server and setting appears. Choose the server as **"Glassfish Serve"**. In the same window application context path is automatically shown us as **"/ServCalculator"**.

Step 5: After Clicking Next the **"Frameworks"** window appears in front of us. Here do not select the any framework. Just **click the finish**.

Step 6: After clicking finish our **"ServCalculator"** is created in netbeans.

Step 7: Add the Servlet in our project by selecting our project name from project Tab in Netbeans IDE such as Right click on Source Package directory of our **project -> New ->Servlet**.

Step 8: Give the name to our Servlet file as **Calculator** and package name as **EJPracts**.

Step 9: in the new configure window select and check the **checkbox** for **add information** to Deployments Descriptor(web.xml) and **click on the finish**.

Step 10: now add the following code to **default index.html** or **index.jsp**.

Step 11: add the following code in **"Calculator.java"**.

Index.html

```
<html><head><title>Calculator App</title></head>
<body>
    <form action="Calculator">
        Enter no. <input type="text" name="txtN1"> <br>
        Enter no. <input type="text" name="txtN2"> <br>
        Select an operation
        <input type="button" name="opr" value="+">Add
        <input type="button" name="opr" value="-">Sub
        <input type="button" name="opr" value="*">Mul
        <input type="button" name="opr" value="/">Div<br>
        <input type="reset">
        <input type="submit" value="Calculate">
    </form>
</body>
</html>
```

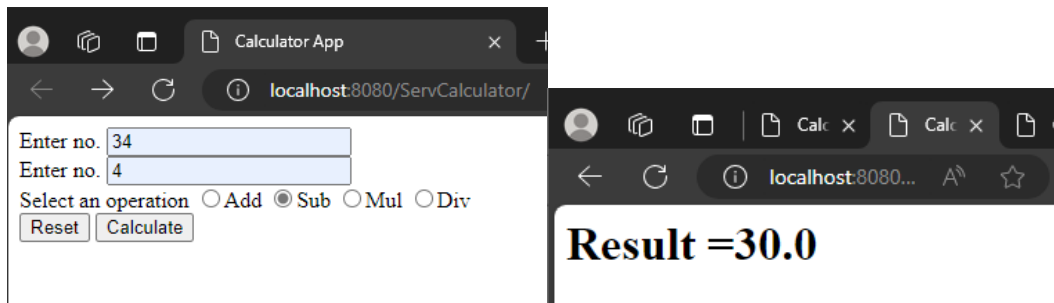
Calculator.java

```
package EJPracts;
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
```

```

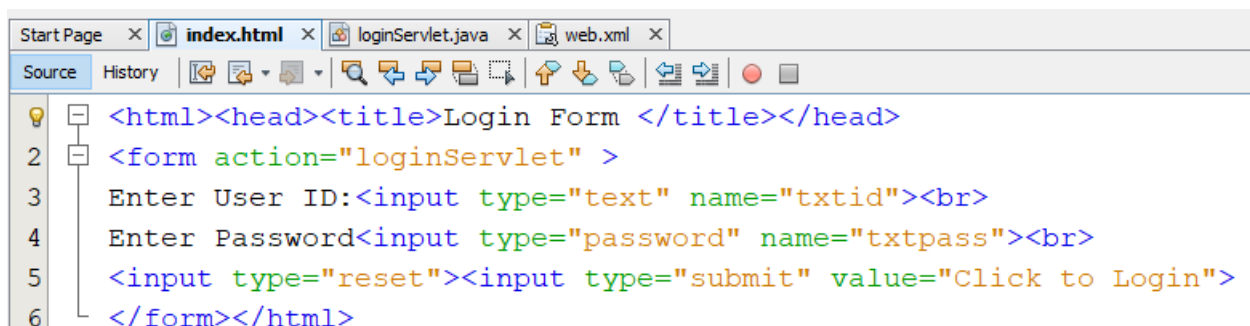
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
public class Calculator extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();
        /* TODO output your page here. You may use following sample code. */
        out.println("<html><head><title>Calculator App</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>");
    }
}

```



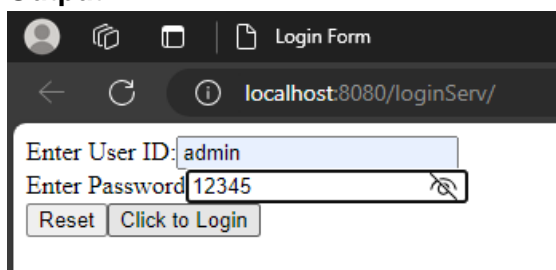
B. Create a servlet for a login page. If the username and password are correct then it says message “Hello <username>” else a message “login failed”

index.html



Java code:

```
package EJPracts;
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 loginServlet extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        try (PrintWriter out = response.getWriter()) {
            out.println("<html><head><title>Login Form</title></head><body>");
            String uname = request.getParameter("txtid");
            String upass = request.getParameter("txtpass");
            if (uname != null && upass != null && uname.equals("admin") &&
                upass.equals("12345")) {
                out.println("<body bgcolor=\"gray\">");
                out.println("<h1>Welcome !!!" + uname + "</h1>");
            } else {
                out.println("<body bgcolor=\"red\">");
                out.println("<h1>Login Failed !!!</h1>");
            }
            out.println("</body></html>");
        } catch (Exception e) {
            response.setContentType("text/html");
            try (PrintWriter out = response.getWriter()) {
                out.println("<html><head><title>ERROR</title></head><body>");
                out.println("<h2>An Error Occurred:" + e.getMessage() + "</h2>");
                out.println("</body></html>");
                e.printStackTrace(out);
            }
        }
    }
}
```

Output:



C. 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: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 Successfully");
}catch(Exception e){out.println(e);}
}
}

```

Output:

The screenshot shows a SQL query result in a database client. The query is 'SELECT * FROM logindb.'us...'. The result shows two rows of data:

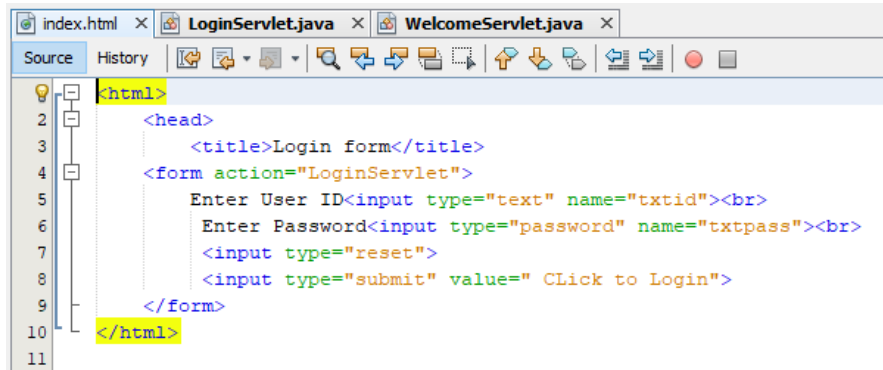
#	username	password	email	country
1	admin	admin	admin@admin.com	India
2	Jimmy	abcd	abcd@xyz.com	Japan

Practical no.2

A. 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.

Source Code:

Index.html



```
<html>
  <head>
    <title>Login form</title>
    <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>
```

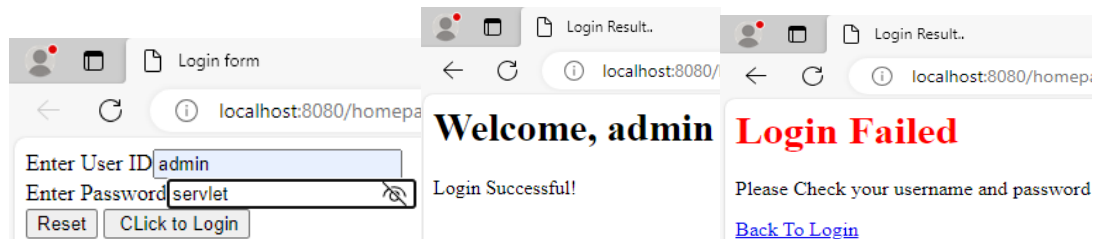
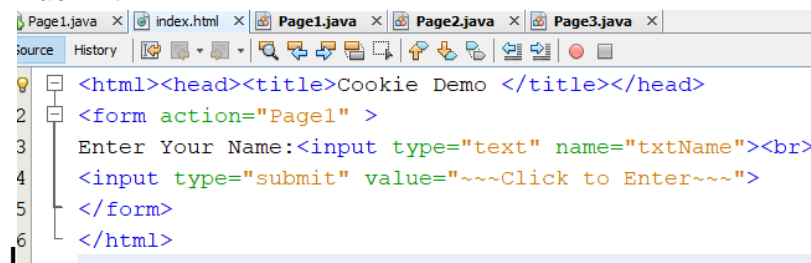
LoginServlet

```
package EJPracts;
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 LoginServlet extends HttpServlet {
    @Override
    protected void doPost(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        String uname=request.getParameter("txtid");
        String upass=request.getParameter("txtpass");
        try (PrintWriter out = response.getWriter()) {
            out.println("<html><head>");
            out.println("<title>Login Result..</title></head>");
            out.println("<body>");
            if ("admin".equals(uname)&&"servlet".equals(upass))
            {
                out.println("<h1>Welcome, "+uname+"</h1>");
                out.println("<p> Login Successful!</p>");
            }
            else{
```

```
        out.println("<h1 style=color:red>Login Failed</h1>");
        out.println("<p>Please Check your username and password</P>");
        out.println("<a href=index.html> Back To Login </a>");
    }
    out.println("</body>");
    out.println("</html>");
}
catch(IOException e)
{
    throw new ServletException("IOException in LoginServlet",e);
}
}
```

WelcomeServlet Code:

```
package EJPracts;
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 WelcomeServlet extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        try (PrintWriter out = response.getWriter()) {
            out.println("<html><head>");
            out.println("<title>Welcome Page.....</title></head>");
            out.println("<body>");
            out.println("<h1>Welcome to the system </h1>");
            out.println("<p> This is the welcome page</p>");
            out.println("</body>");
            out.println("</html>");
        }
        catch(IOException e)
        {
            throw new ServletException("IOException in WelcomeServlet",e);
        }
    }
}
```

OutPut:
B.Create a servlet that uses Cookies to store the number of times a user has visited servlet
Index.html
**Page1.java**

```
package EJPracts;
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.Cookie;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

public class Page1 extends HttpServlet {
    protected 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=red>");
```

Page2.java

```
package EJPracts;
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.Cookie;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

public class Page2 extends HttpServlet {
    protected 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=red>");
        Cookie[] ck= request.getCookies();
        if (ck !=null){
            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:" +
```

```

        String
uname=request.getParameter("txtName");
        out.println("<h1>Welcome" + uname
+ "</h1>");
        Cookie ck1 =new Cookie("username",
uname);
        Cookie ck2 = new Cookie("visit","1");
        out.println("<h1< <a href=\"Page2\">
Click to Visit Page2</a></h1>");
        out.println("</body>");
        out.println("</html>");
    }
}

```

```

count + "</h1>");
ck[i].setValue(String.valueOf(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 EJPracts;
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 Page3 extends HttpServlet {
    protected 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=blue>");

```

Page5.java

```

package EJPracts;
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 Page5 extends HttpServlet {
    protected 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>");
    out.println("<h1>Welcome to page
3</h1>");
    out.println("<p> this is Khushboo
Yadav...</p>");

```

```

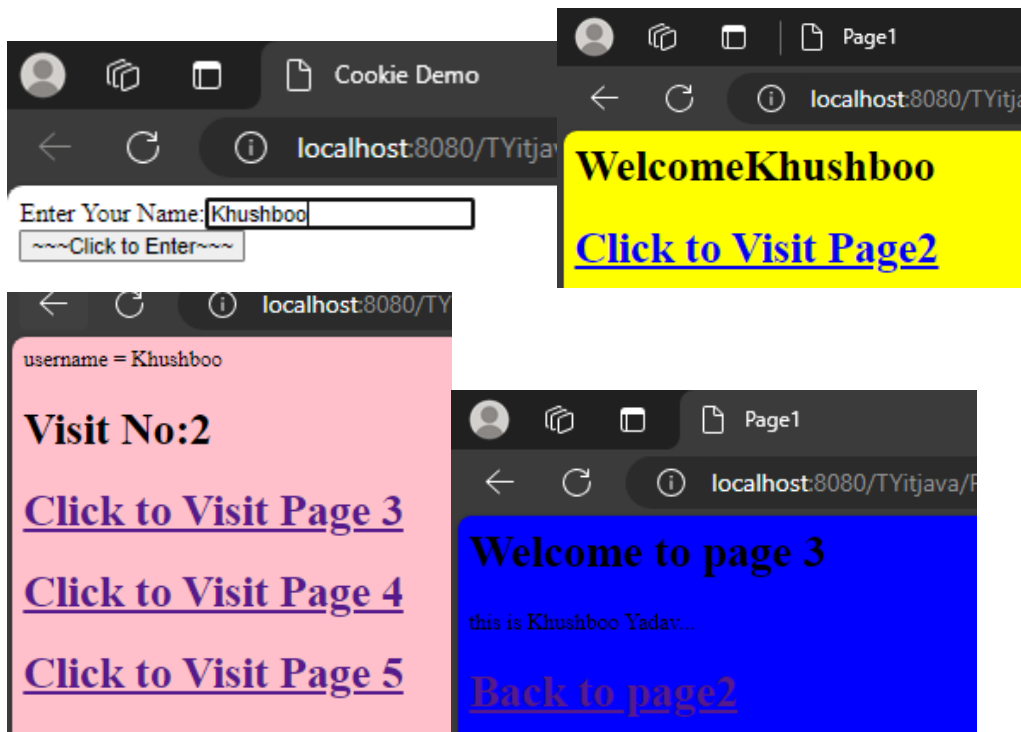
        out.println("<h1>Welcome to page
3</h1>");
        out.println("<p> this is Khushboo
Yadav...</p>");
        out.println("<h1><a href=\"Page2\">
Back to page2</a></h1>");
        out.println("</body>");
        out.println("</html>");
    }}

```

```

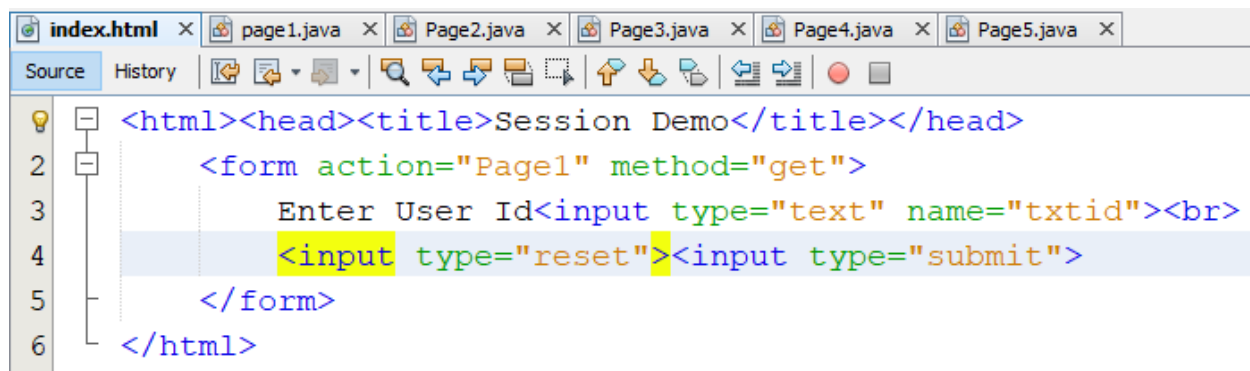
        out.println("<h1><a href=\"Page2\">
Back to page2 </a></h1>");
        out.println("</body>");
        out.println("</html>");
    }
}

```

OutPut:

C) 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.

Source Code:



```

1 <html><head><title>Session Demo</title></head>
2   <form action="Page1" method="get">
3       Enter User Id<input type="text" name="txtid"><br>
4       <input type="reset"><input type="submit">
5   </form>
6 </html>

```

Page1.java

```

package EJPracts;
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 {
    @Override
    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='pink'>");
            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>");

```

Page2.java

```

package EJPracts;
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 {
    @Override
    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);
        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>");

```

<pre> int visit = Integer.parseInt((String) hs.getAttribute("visit")); out.println("<h1>YOU Visited" + visit + Times</h1>"); hs.setAttribute("visit",Integer.toString(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> Click to Page 2 </h1>"); out.println("<h1> Click to Page 3 </h1>"); out.println("<h1> Click to Page 4 </h1>"); out.println("<h1> Click to Terminate Session </h1>"); out.println("</body>"); out.println("</html>"); }} </pre>	<pre> out.println("<h1>YOU Logged in at:" + new java.util.Date(hs.getCreationTime()) + "</h1>"); out.println("<h1> Click to Page 1 </h1>"); out.println("<h1> Click to Page 3 </h1>"); out.println("<h1> Click to Page 4 </h1>"); out.println("<h1> Click to Terminate Session </h1>"); out.println("</body>"); out.println("</html>"); } } </pre>
<p>Page3.java</p> <pre> package EJPracts; 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 { @Override public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException { response.setContentType("text/html;charset= UTF-8"); PrintWriter out = response.getWriter(); </pre>	<p>Page4.java</p> <pre> package EJPracts; 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 Page4 extends HttpServlet { @Override public void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException { </pre>

<pre> out.println("<html><head><title>Servlet Page3</title></head>"); HttpSession hs = request.getSession(false); if (hs == null){ out.println("<body bgcolor='red'>"); out.println("<h1>Session has Expired. Please start a new session..</h1>"); out.println("<h1> Click to Page 1 </h1>"); out.println("</body>"); out.println("</html>"); return; } out.println("<body bgcolor='lightblue'>"); out.println("<h1>Welcome Again on Page no.3</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> Click to Page 1 </h1>"); out.println("<h1> Click to Page 2 </h1>"); out.println("<h1> Click to Page 4 </h1>"); out.println("<h1> Click to Terminate Session </h1>"); out.println("</body>"); out.println("</html>"); } } </pre>	<pre> response.setContentType("text/html;charset =UTF-8"); PrintWriter out = response.getWriter(); out.println("<html><head><title>Servlet Page4</title></head>"); HttpSession hs = request.getSession(false); if(hs == null){ out.println("<body bgcolor='red'>"); out.println("<h1>Session has Expired. Please start a new session..</h1>"); out.println("<h1> Click to Page 1 </h1>"); out.println("</body>"); out.println("</html>"); return; } out.println("<body bgcolor='lightgreen'>"); out.println("<h1>Welcome Again on Page no.4</h1>"); try{ String visitStr =(String) hs.getAttribute("visit"); int visit = (visitStr != null) ? Integer.parseInt(visitStr) : 0; visit++; hs.setAttribute("visit",Integer.toString(visit)); out.println("<h1>YOU Visited" + visit + " Times</h1>"); } catch(NumberFormatException e){ out.println("<h1>Error Processing visit count.Please try Again..</h1>"); e.printStackTrace(); } out.println("<h1>YOUR Session ID:" + hs.getId() + "</h1>"); out.println("<h1>YOU Logged in at:" + new java.util.Date(hs.getCreationTime()) + "</h1>"); </pre>
---	---

	<pre> out.println("<h1> Click to Page 1 </h1>"); out.println("<h1> Click to Page 3 </h1>"); out.println("<h1> Click to Page 4 </h1>"); out.println("<h1> Click to Terminate Session </h1>"); out.println("</body>"); out.println("</html>"); } }</pre>
--	--

Page5.java

```

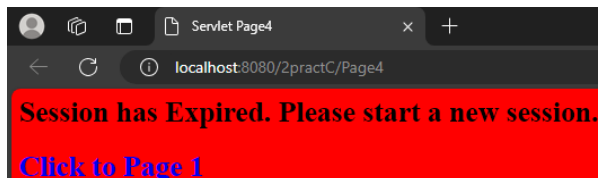
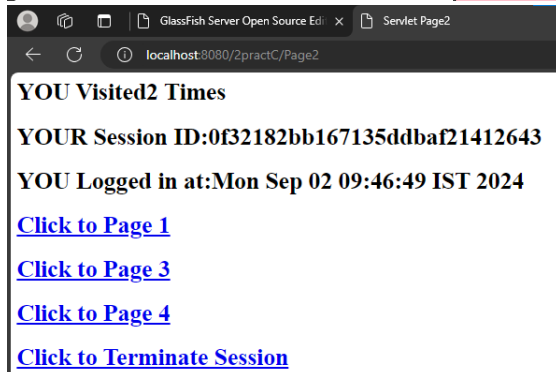
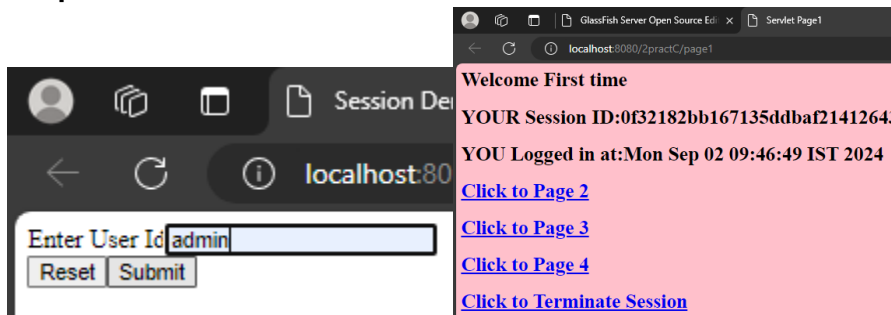
package EJPracts;
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
public class Page5 extends HttpServlet {
    @Override
    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 Page5</title></head>");
        HttpSession hs = request.getSession(false);
        if(hs == null){
            out.println("<body bgcolor='red'>");
            out.println("<h1>Session has Expired. Please start a new session..</h1>");
            out.println("<h1><a href='Page1'> Click to start a new session. </a></h1>");
            out.println("</body>");
            out.println("</html>");
            return;
        }
    }
}
```

```

out.println("<body bgcolor='lightcoral'>");
out.println("<h1>Welcome Again on Page no.5</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 to Page 1 </a></h1>");
out.println("<h1><a href='Page2'> Click to Page 2 </a></h1>");
out.println("<h1><a href='Page3'> Click to Page 3 </a></h1>");
out.println("<h1><a href='Page4'> Click to Page 4 </a></h1>");
out.println("<h1><a href=LogoutServlet> Click to Terminate Session </a></h1>");
out.println("</body>");
out.println("</html>");
}
}

```

Output:



Practical 3

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

Source code:

```
package EJPracts;
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;

public class DownloadServ extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("APPLICATION/OCTET-STREAM");
        String filename= request.getParameter("filename");

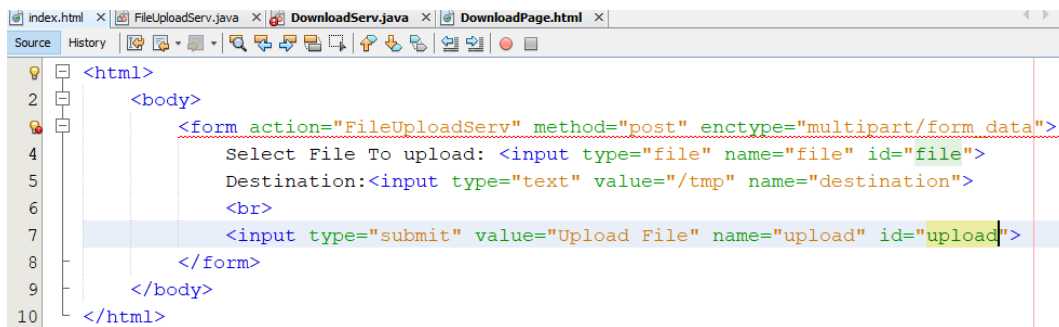
        if (filename == null || filename.isEmpty())
        { response.sendError(HttpServletResponse.SC_BAD_REQUEST,"Filename parameter is missing.");
          return;
        }
        File file =new File(getServletContext().getRealPath("/")+"uploads",filename);
        if(!file.exists()){
            response.sendError(HttpServletResponse.SC_NOT_FOUND,"File not Found");
            return;
        }
        response.setHeader("Content-disposition", "attachment; filename=\"\" +filename + "\"");
        try (ServletOutputStream out = response.getOutputStream()) {
            byte[] buffer = new byte[1024];
            int bytesRead;
            while ((bytesRead = is.read(buffer))!=-1)
            { out.write(buffer , 0, bytesRead);
              }
        }
    }
}
```

```
package EJPracts;
import java.io.*;
import javax.servlet.*;
import javax.servlet.annotation.MultipartConfig;
import javax.servlet.http.*;
@MultipartConfig
public class FileUploadServ extends HttpServlet {
    protected void doPost(HttpServletRequest req, HttpServletResponse res)
        throws ServletException, IOException{
```

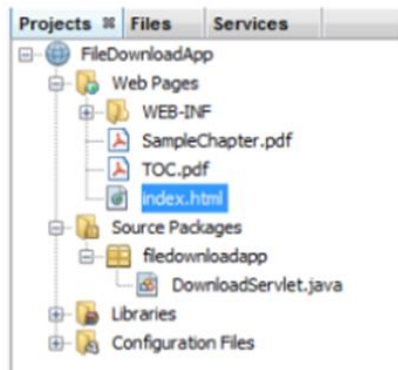
```

res.setContentType("text/html");
PrintWriter out = res.getWriter();
String path = req.getParameter("destination");
Part filePart = req.getPart("file");
String filename = filePart.getSubmittedFileName();
out.println("<html><body>");
out.println("<br><br><hr> File name: "+filename);
try (
    InputStream is=filePart.getInputStream();
    OutputStream os= new FileOutputStream(new File(path + File.separator+filename)))
{
    byte[] buffer = new byte[1024];
    int bytesRead;
    while ((bytesRead = is.read(buffer))!=-1)
    { os.write(buffer , 0, bytesRead);
    }
    out.println("<br>File uploaded successfully....!!");
}
catch (FileNotFoundException e){
    out.println("<br>Error: "+e.getMessage());
} out.println("</body></html>");
}
}

```



Output:



B. Develop Simple Servlet Question Answer Application using Database.**Source Code:**

```
create database qadb;use qadb;
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 rs = 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:3306/qadb","root","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);} } }

```

Output:

select * from quiz

#	op1	op2	op3	op4	ans
1	What is the capital of India??	New Delhi	Kolkata	Chennai	New Delhi
2	Who was the First President of India??	Dr. Rajendra Prasad	Dr. S. Radhakrishnan	Ram Nath Kovind	Dr. Rajendra Prasad
3	What is ORM	Object Ratio Mean	Object Rotation Measure	Object Relation Mapping	Object Relation Mapping
4	Unit of Energy is ____	Dozen	Kilo Meter	Joul	Joul
5	What is the smallest memory unit.	bit	byte	Kilo Byte	bit

QuizServlet

Firefox

← localhost:8080/Practical3B/QuizServlet

001 What is the capital of India??

☒ New Delhi

☐ Kolkata

☐ Chennai

☐ Mumbai

002 Who was the First President of India??

☒ Dr. Rajendra Prasad

☐ Dr. S. Radhakrishnan

☐ Ram Nath Kovind

☐ V. V. Giri

003 What is ORM

☐ Object Ratio Mean

☐ Object Rotation Measure

☒ Object Relation Mapping

☐ Oracle Request Management

004 Unit of Energy is ____

☐ Dozen

☐ Kilo Meter

☒ Joul

☐ Hertz

005 What is the smallest memory unit.

☒ bit

☐ byte

☐ Kilo Byte

☐ Giga Byte

Reset SUBMIT

ShowResult

Firefox

← localhost:8080/Practical3B/QuizServlet

Incorrect

Incorrect

Incorrect

Correct

Correct

Your Score is 2

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

```
<html><head><title>Non Blocking IO</title><meta charset="UTF-8">
<meta http-equiv="Refresh" content="0; URL=NonBlockingServlet"></head><body></body>
</html>
```

NonBlockingServlet.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() + "/"
            ReadingNonBlockingServlet";
            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

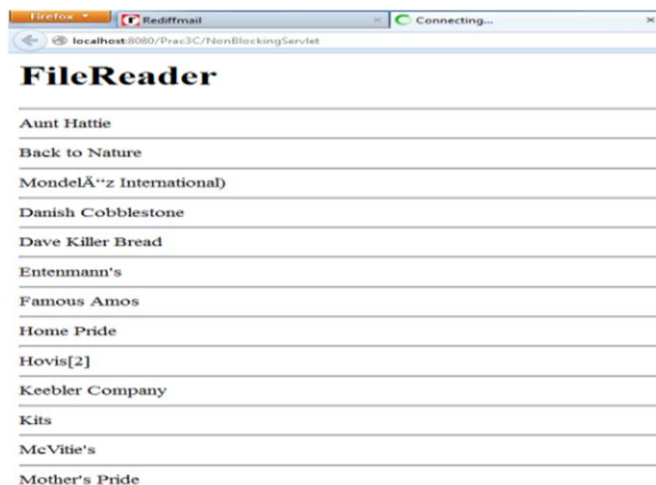
```
package nonblkapp;
import java.io.IOException;
import java.util.logging.Level;
import java.util.logging.Logger;
import javax.servlet.AsyncContext;
import javax.servlet.ReadListener;
import javax.servlet.ServletInputStream;
public class ReadingListener implements ReadListener
{
    private ServletInputStream 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;
@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));
}
}
```

Output:



Practical no.4

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

Source code of JSP:

```
<%--
    Document   : JSPIntrinsic
    Created on : 8 Oct, 2024, 9:55:34 AM
    Author    : spdc
--%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Intrinsic Object example</title>
    </head>
    <body>
        <h3>Intrinsic Object in JSP</h3>
        <h3> Using the Request object</h3>
        <p>Request method: <%= request.getMethod() %></p>
        <p>Request URI: <%= request.getRequestURI() %></p>
        <h3> Using the Response object</h3>
        <p>Content type: <%= response.getContentType() %></p>
        <h3>Using the Session Object</h3>
        <%
            session.setAttribute("user","Khushboo Yadav");
            String user= (String) session.getAttribute("user");
            %>
        <p>Session User: <%= user %></p>
        <h3>Using the Application Object</h3>
        <%
            application.setAttribute("appname","MY JSP Page");
            String appname= (String) application.getAttribute("appname");
            %>
        <p>Application NAmE: <%= appname %></p>
        <h3>Using the out object</h3>
        <p>This is an example of out object.</p>
        <p>It write directly to the response: <%= "Hello Khushboo" %></p>
        <h3>Using the config object</h3>
        <p>Servlet context path: <%= config.getServletContext().getContextPath() %></p>
    </body>
</html>
```

Output:**Intrinsic Object in JSP**

Session User: Khushboo Yadav

Using the Request object**Using the Application Object**

Request method: GET

Application Name: MY JSP Page

Request URI: /JSPKhushintrinsic/JSPIntrinsic.jsp

Using the out object**Using the Response object**

This is an example of out object.

Content type: text/html; charset=UTF-8

It write directly to the response: Hello Khushboo

Using the Session Object**Using the config object**

Session User: Khushboo Yadav

Servlet context path: /JSPKhushintrinsic

B. 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).

Source code:**Form.jsp**

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <title>User info form</title>
    <script>
      function ValidateForm(){
        const name= document.getElementById("name").value;
        const age= document.getElementById("age").value;
        const email= document.getElementById("email").value;
        if(!name || !age || !email)
        {
          alert("Please fill all required fields.")
          return false;
        }
        return true;
      }
    </script>
  </head>
  <body>
    <h2>Registration form</h2>
    <form action="result.jsp" method="post" onsubmit="return ValidateForm()">
```

```

Name: <input type="text" name="name" id="name" required><br>
Age: <input type="text" name="age" id="age" required min="1" max="100"><br>
Hobbies:<br>
<input type="checkbox" name="hobbies" value="Reading">Reading<br>
<input type="checkbox" name="hobbies" value="Traveling">Traveling<br>
<input type="checkbox" name="hobbies" value="Gaming">Gaming<br>
Email: <input type="email" name="email" id="email" required><br>
Gender:<br>
<input type="radio" name="gender" value="Male" required>Male<br>
<input type="radio" name="gender" value="Female">Female<br>
<input type="submit" value="submit">
</form>
</body>
</html>

```

Result.jsp

```

<%@page language="java" import="java.util.Arrays" contentType="text/html"
pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Form Submission Result</title>
</head>
<body>
<h2>Submitted Information</h2>
<%
String name = request.getParameter("name");
String age = request.getParameter("age");
String[] hobbies = request.getParameterValues("hobbies");
String email = request.getParameter("email");
String gender = request.getParameter("gender");
if (name == null || age == null || email == null || gender == null){
    out.println("<p>Missing Info.Please refill all details.");
    return;
}
out.println("<p>Name:" + name + "</p>");
out.println("<p>Age:" + age + "</p>");
out.println("<p>Email:" + email + "</p>");
out.println("<p>Gender:" + gender + "</p>");
if(hobbies != null && hobbies.length >0){
    out.println("<p>Hobbies:" + String.join(", ", hobbies) + "</p>");
}
else{

```

```

        out.println("<p>No Hobbies Selected.</p>");
    }
    %>
    <a href="form.jsp" > Go Back </a>
</body>
</html>

```

Output:

C. 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.

Source Code:**Index.html**

```

<html>
<head>
<title>register</title>
</head> <body>
<h1> Registration Form </h1>
<form action="dataserv">
<table border="1" width="50%">
<tbody>
<tr>
<td>Username:</td>
<td><input type="text" name="uname" value=""></td>
</tr>
<tr>
<td>Password:</td>

```

```

        <td><input type="password" name="pass" value=""></td>
    </tr>
    <tr>
        <td>Email ID:</td>
        <td><input type="email" name="email" value=""></td>
    </tr>
    <tr>
        <td>Country:</td>
        <td><input type="text" name="country" value=""></td>
    </tr>
    <tr>
        <td><input type="submit" value="Register"/></td>
        <td><input type="reset" value="Clear"/></td>
    </tr>
</tbody>
</table>
</form>
</body>
</html>

```

Servlet Code:

```

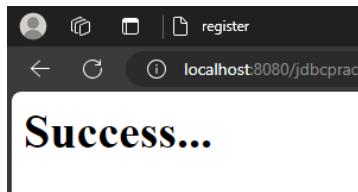
package EJPracts;
import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.http.*;

public class dataserv extends HttpServlet
{
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        PrintWriter out = response.getWriter();
        String a= request.getParameter("uname");
        String b= request.getParameter("pass");
        String c= request.getParameter("email");
        String d= request.getParameter("country");
        try {
            String url="jdbc:mysql://localhost:3306/db5";
            Class.forName("com.mysql.jdbc.Driver");
            Connection con=DriverManager.getConnection(url,"root","12345");
            Statement st=con.createStatement();
            st.executeUpdate("INSERT INTO Register values('"+a+"','"+b+"','"+c+"','"+d+"')");
            out.println("<h1>Success...</h1>");
            con.close();
        }catch(Exception ex){
            out.println(ex.getMessage());
        }
    }
}

```


}}
OutPut:

Registration Form

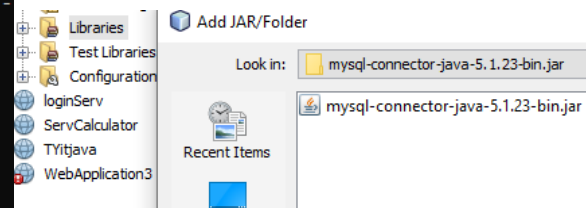


Username:	Khushboo
Password:
Email ID:	xyz@gmail.com
Country:	India
<input type="button" value="Register"/>	<input type="button" value="Clear"/>

```
mysql> use db5;
Database changed
mysql> create table Register
-> ( username varchar(20),
-> Password varchar(20),
-> email varchar(20),
-> country varchar(20));
Query OK, 0 rows affected (0.02 sec)

mysql> desc Register;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| username | varchar(20) | YES | | NULL | |
| Password | varchar(20) | YES | | NULL | |
| email | varchar(20) | YES | | NULL | |
| country | varchar(20) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.01 sec)

mysql> select * from Register;
+-----+-----+-----+-----+
| username | Password | email | country |
+-----+-----+-----+-----+
| Khushboo | yadav | xyz@gmail.com | India |
+-----+-----+-----+-----+
1 row in set (0.00 sec)
```



Practical 5

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: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>

```

Output:

SELECT * FROM emp LIMIT 1... 5

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	ddddd	123123	44
5	5	eeee	12123	55

SELECT * FROM emp LIMIT 1... 5

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	ddddd	123123	44

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

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

```
CREATEDATABASEIFNOTEXISTS sampleDB;
CREATETABLE`product` (
`id` int(10) unsigned NOTNULLauto_increment,
`pname` varchar(45) NOTNULL,
`quantity` int(10) unsigned NOT NULL,
PRIMARY KEY (`id`)
);
INSERT INTO`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>
<meta http-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>
<meta http-equiv="Content-Type"content="text/html; charset=UTF-8"> <title>JSP Page</title>
</head>
<body>
<formaction="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><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">
<fontsize="5"color='green'> Congratulations ! Data inserted
successfully.</font>
<c:redirect url="insert.jsp">
<c:param name="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:setDataSource var="dbsource" driver="com.mysql.jdbc.Driver"
url="jdbc:mysql://localhost/sampleDB"
user="root" password="pass"/>
<sql:query dataSource="${dbsource}" var="result">
SELECT * from product;
</sql:query>
<center>
<form>
<table border="1" width="40%">
<caption>Product List</caption>
<tr>
<th>Product ID</th>
<th>Product Name</th>
<th>Quantity</th>
<th colspan="2">Action</th>
</tr>
<c:forEach var="row" items="${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>
<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>
<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:update dataSource="${dbsource}" var="count">
UPDATE product SET pname = ?, quantity=?
WHERE id='${param.id}'
<sql:param value="${param.pname}"/>
<sql:param value="${param.qty}"/>
</sql:update>
<c:if test="${count}>=1">
<font size="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>
```

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

```
<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>
```

CurrencyConvert.java

```
package com.test;
import javax.ejb.Stateless;
@Stateless
public class CurrencyConvert implements CurrencyConvertLocal {

    @Override
    public float RToD() {
        return R/80;
    }
    @Override
    public float DToR() {
        return D*80;
    }
}
```

currencyConvertLocal.java

```
package com.test;
import javax.ejb.Local;
@Local
public interface CurrencyConvertLocal { float RToD(float R);
    float DToR(float D);
}
```

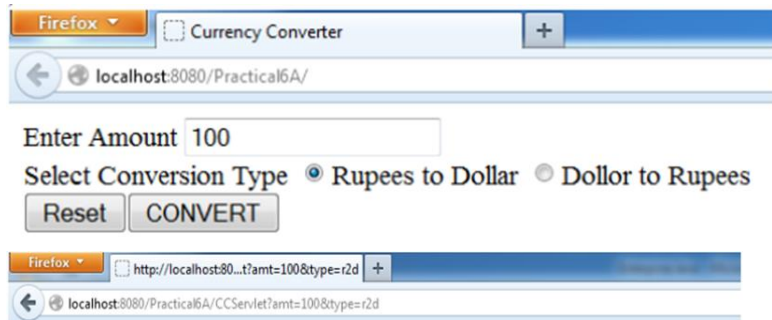
Conversion.jsp

```
<%pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
  <head>
```

```

<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Currency Converter</title>
</head>
<body>
<%
    String choiceparam = request.getParameter("conversionType");
    String amountparam = request.getParameter("amount");
    if (choiceparam == null || amountparam == null ||
        choiceparam.isEmpty() || amountparam.isEmpty()){
        out.println("Please select conversion type and enter a amount.");
    }
    else{
        try {
            int choice = Integer.parseInt(choiceparam);
            float amt = Float.parseFloat(amountparam);
            CurrencyConvert cl= new CurrencyConvert();
            float camt = (choice == 1) ? cl.DToR(amt) : cl.RToD(amt);
            out.println("Converted Amount :", + camt);
        } catch (NumberFormatException e){
        }
    }
}
%>
</body>
</html>

```

Output:

100.0 Rupees = 1.523229246001523 Dollors

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

Create table roombook(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);
    }}

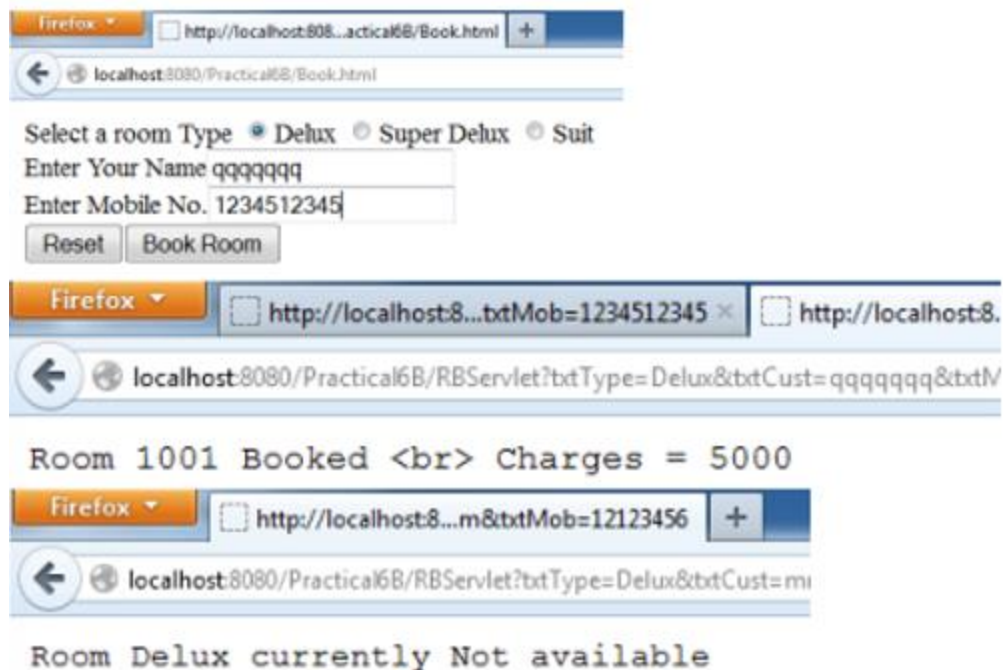
```

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:3306/rrdb","root","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;}}

```



C. 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

```
~~~~~
```

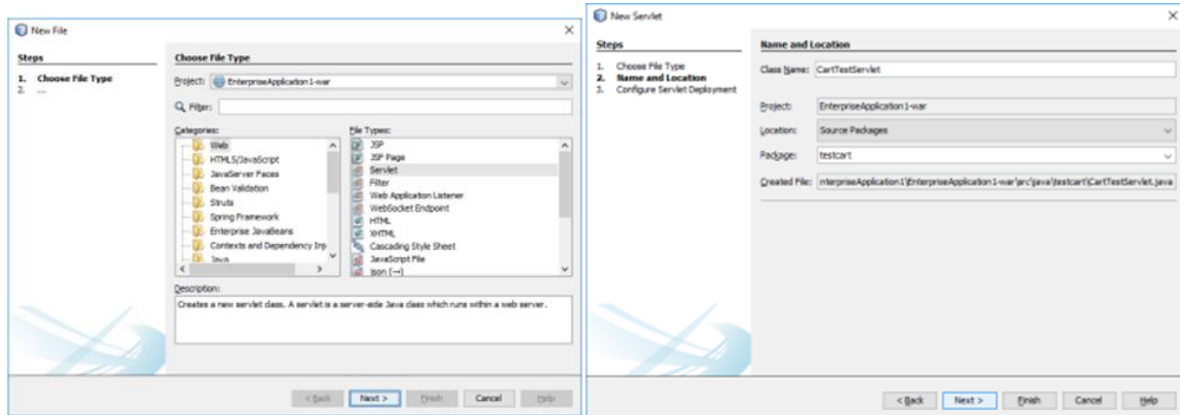
```
package cart;
```

```
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 ");
    }
}

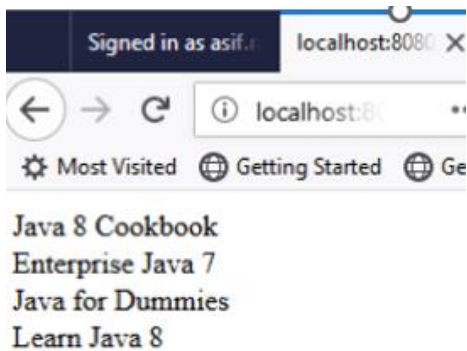
```



```

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);
}}}

```

Output:

Practical 7

A. 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

Run this file to get the output



Welcome to Hit Count Page

Page was hit 4 times

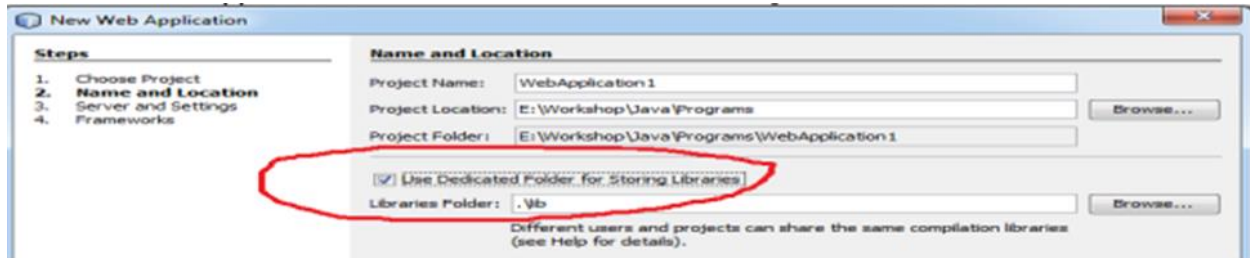
Practical 8

A. Develop a Guestbook Application Using JPA.

JPA Practical using GuestBook

Steps:

1. Create Web Application with dedicated folder for Library



2. Add Simple java class or Persistent Entity class from Database (code below GuestBook.java)
3. Add SQL Connector Jar file to Library
4. Create Persistence Unit using jdbc connection to MySQL database
5. Create the JSP files (codes given below)
6. 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("JPAAApplication1PU");
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>
```

## Practical 9

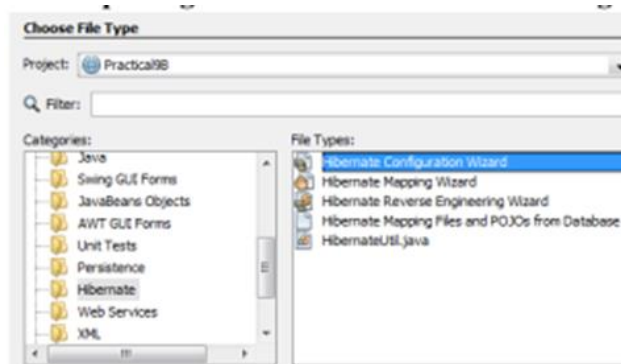
### A. Develop a Hibernate application to store Feedback of Website Visitor in MySQL Database.

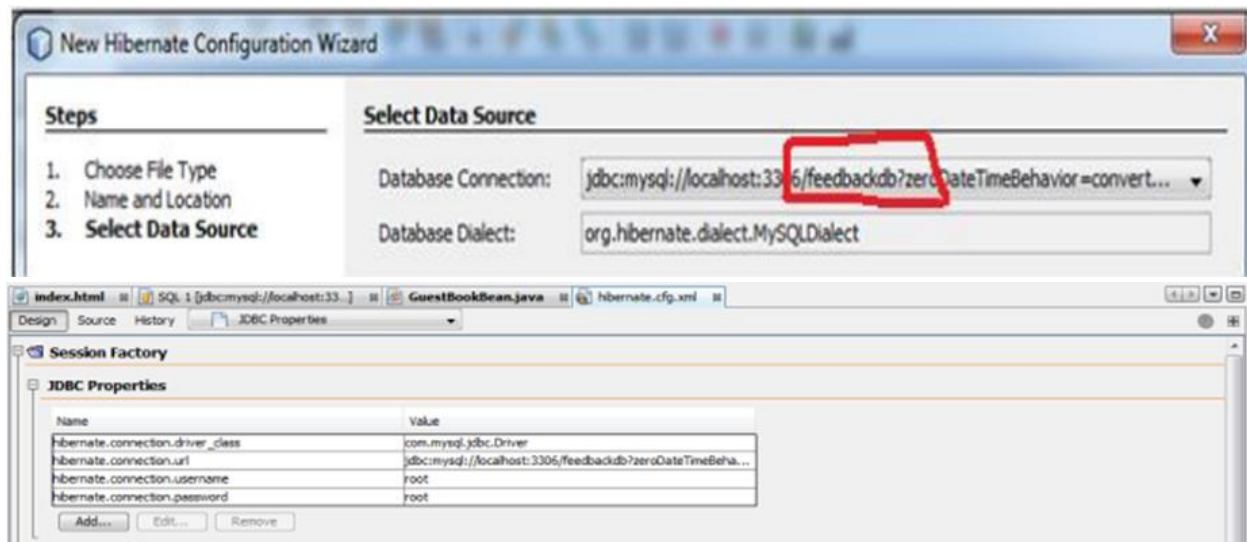
```
create database feedbackdb;
create table GuestBook( vno int PRIMARY KEY AUTO_INCREMENT, vname varchar(50), msg
varchar(100), mdate varchar(50))
```

#### GuestBookBean.java

```
package mypack;
import javax.persistence.*;
@Entity
@Table(name="guestbook")
public class GuestBookBean implements java.io.Serializable {
    @Id
    @GeneratedValue
    @Column(name="vno")
    private Integer visitorNo;
    @Column(name="vname")
    private String visitorName;
    @Column(name="msg")
    private String msg;
    @Column(name="mdate")
    private String msgDate;
    public GuestBookBean() { }
    public Integer getVisitorNo() { return visitorNo; }
    public String getVisitorName() { return visitorName; }
    public String getMsg() { return msg; }
    public String getMsgDate() { return msgDate; }
    public void setVisitorNo(Integer vn) { visitorNo = vn; }
    public void setVisitorName(String vn) { visitorName = vn; }
    public void setMsg(String m) { msg = m; }
    public void setMsgDate(String md) { msgDate=md; }
}
```

Source packages → new → others → select category Hibernate → Hibernate Configuration Wizard





```
<hibernate-configuration>
```

```
<session-factory>
```

```
<property name="hibernate.dialect">org.hibernate.dialect.MySQLDialect</property> <property
name="hibernate.connection.driver_class">com.mysql.jdbc.Driver</property> <property
name="hibernate.connection.url">jdbc:mysql://localhost:3306/feedbackdb?zeroDateTimeBehavi
or=convertToNull</property>
```

```
<property name="hibernate.connection.username">root</property>
```

```
<property name="hibernate.connection.password">root</property>
```

```
<mapping class="mypack.GuestBookBean" />
```

```
</session-factory>
```

```
</hibernate-configuration>
```

```
----- index.html----- <h1>Website
```

```
Feedback Form for google.con </h1>
```

```
<form action="fb.jsp" >
```

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

```
Enter Your Message : <textarea rows="10" cols="50" name="message" ></textarea><br>
```

```
<input type="submit" value="Submit My FeedBack " >
```

```
</form>
```

```
----- fb.jsp----- <%@page
```

```
import="org.hibernate.*, org.hibernate.cfg.*, mypack.*" %>
```

```
<%! sessionFactory sf;
```

```
org.hibernate.Session hibSession;
```

```
%>
```

```
<%
```

```
sf = new Configuration().configure().buildSessionFactory();
```

```
hibSession = sf.openSession();
```

```
Transaction tx = null;
```

```
GuestBookBean gb = new GuestBookBean();
```

```
try{
```

```
tx = hibSession.beginTransaction();
```



```
String username = request.getParameter("name");
String usermsg = request.getParameter("message");
String nowtime = ""+new java.util.Date();
gb.setVisitorName(username);
gb.setMsg(usermsg);
gb.setMsgDate(nowtime);
hibSession.save(gb);
tx.commit();
out.println("Thank You for your valuable feedback....");
}catch(Exception e){out.println(e);}
hibSession.close();
%>
```

