# Module 1

Implement the following Simple Servlet applications.

a. Create a simple calculator application using servlet.

b. Create a servlet for a login page. If the username and password are correct then it says message "Hello " else a message "login failed"

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.

# THEORY- PRACTICAL 1
**Aim: To Implement the following Simple Servlet applications.**

# PRACTICAL 1

## Aim: To Implement the following Simple Servlet applications.

a. Create a simple calculator application using servlet.

**Index.html**

```html
<html>
   <head>
      <title>TODO supply a title</title>
      <meta charset="UTF-8">
      <meta name="viewport" content="width=device-width, initial-scale=1.0">
   </head>
   <body>

   <h1>Simple Calculator</h1>
   <form action="MyServlet">
   Enter First Number <input type="text" name="num1">
   <br>
    Enter Operator <input type="radio" name="Operator" value="+">+
     <input type="radio" name="Operator" value="-">-
     <input type="radio" name="Operator" value="*">*
     <input type="radio" name="Operator" value="/">/
    <br>
    Enter Second Number <input type="text" name="num2">
    <br>
    <input type="submit" value="Calculate Result">
    </form>
    </body>
</html>
```

**Servlet**

```java
out.println("<body>");
       double d1=Double.parseDouble(request.getParameter("num1"));
       double d2=Double.parseDouble(request.getParameter("num2"));

       switch(request.getParameter("Operator"))
       {
          case "+":
```

4

```
            out.println(d1+d2);
            break;
        case "-":
            out.println(d1-d2);
            break;
        case "*":
            out.println(d1*d2);
            break;
        case "/":
            out.println(d1/d2);
            break;
        default:
            out.println("Wrong Operator");
    }
    out.println("</body>");
```
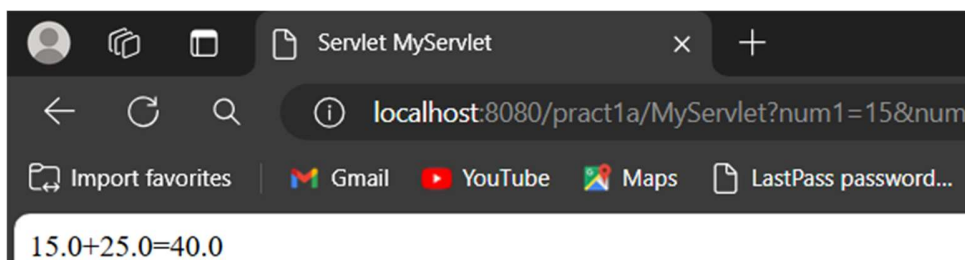
OUTPUT:

# Simple Calculator

First Number 15
Second Number 25
Enter Operation ◉ +  ○ -  ○ %  ○ *
[ = ]

Servlet MyServlet

localhost:8080/pract1a/MyServlet?num1=15&num

Import favorites    Gmail    YouTube    Maps    LastPass password...

15.0+25.0=40.0

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:**

```
<html>
   <head>
      <title>LOGIN PAGE</title>

   </head>
   <body>
      <div>
      <h1>LOGIN PAGE</h1>
      <br>
      <form action="Myservlet">
         Enter Login Name:<input type="text" name="Login Name">
         <br>
         Enter Password:<input type="text" name="password">
         <br>
         <input type="submit" value="LOGIN">
      </form>
      </div>
   </body>
</html>
```
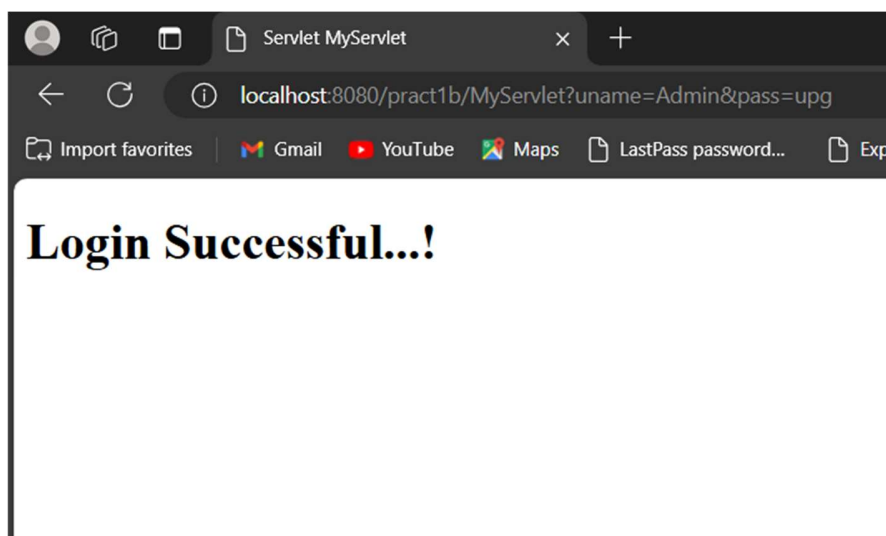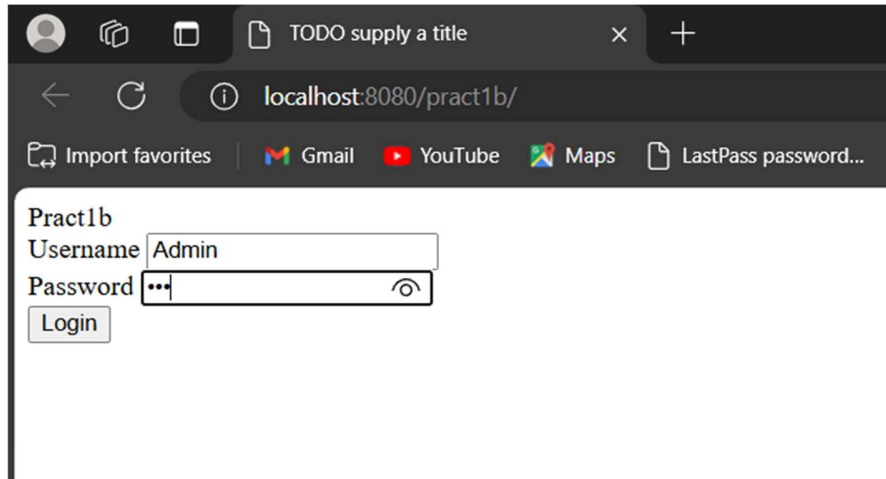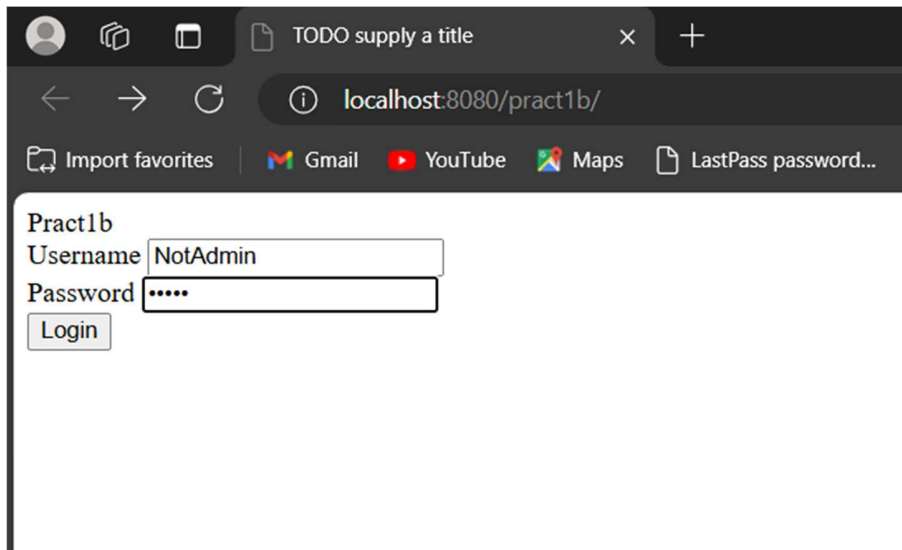
**Servlet**

```
 out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet Myservlet</title>");
        out.println("</head>");
        out.println("<body>");
        String s1 = request.getParameter("Login Name") ;
        String s2 = request.getParameter("password");
        if(s1.equals("Admin")&& s2.equals("upg");
                out.println("Login Successful ! ");  }
        else{
           out.println("Login Failed ! ");
        out.println("</body>");
        out.println("</html>"); }}
```
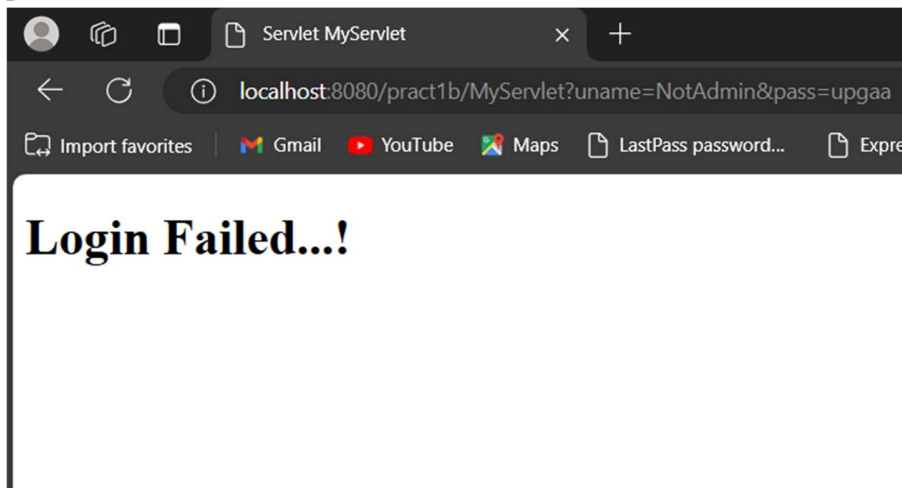
**Login Failed...!**

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.

**Index.html:**

```
<html>
   <head>
      <title>TODO supply a title</title>
      <meta charset="UTF-8">
      <meta name="viewport" content="width=device-width, initial-scale=1.0">
   </head>
   <body>
   <center><h1><b>REGISTRATION FORM</b></h1>
      <font color="blue">
      <form action ="RegistrationServlet">
         Username:<input type="text" name="uname">
         <br><br>
         Password:<input type="password" name="pword">
         <br><br>
         Email:<input type="text" name="email">
         <br><br>
         Country:<input type="text" name ="country">
         <br><br>
         <input type="submit" value="REGISTER">
      </form>
      </font>
   </center>
   </body>
</html>
```
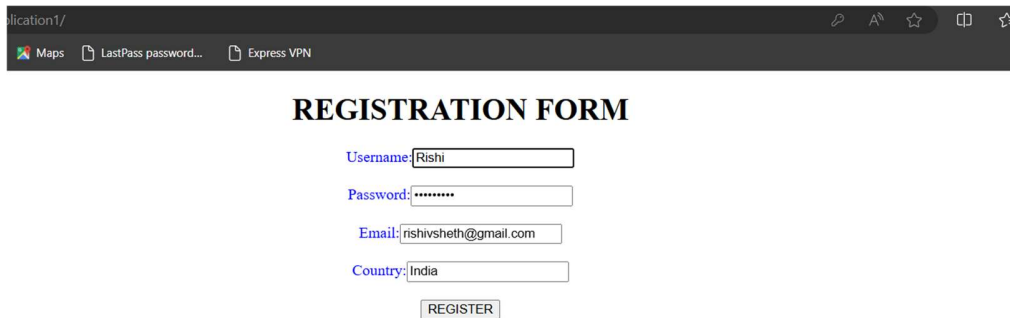
**RegistrationServlet.java**

```
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 java.sql.*;
```

```java
 out.println("<body>");
        out.println("<h1>Servlet RegistrationServlet at " + request.getContextPath() +
"</h1>");

        String s1=request.getParameter("uname");
        String s2=request.getParameter("pword");
        String s3=request.getParameter("email");
        String s4=request.getParameter("country");

        try
        {
        Class.forName("com.mysql.jdbc.Driver");
        Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/test","root","root");
        PreparedStatement pst = con.prepareStatement("insert into Registration_021
values(?,?,?,?)");
        pst.setString(1, s1);
        pst.setString(2, s2);
        pst.setString(3, s3);
        pst.setString(4, s4);
        int result = pst.executeUpdate();
        if (result == 1)
        {
           out.println("<H1>Registration Successful..!</H1>");
        }
        else
        {
           out.println("<H1>Registration Failed..!</H1>");
        }
        }
        catch(Exception e)
        {
           out.print("Exception:"+e);
        }
        out.println("</body>");
```
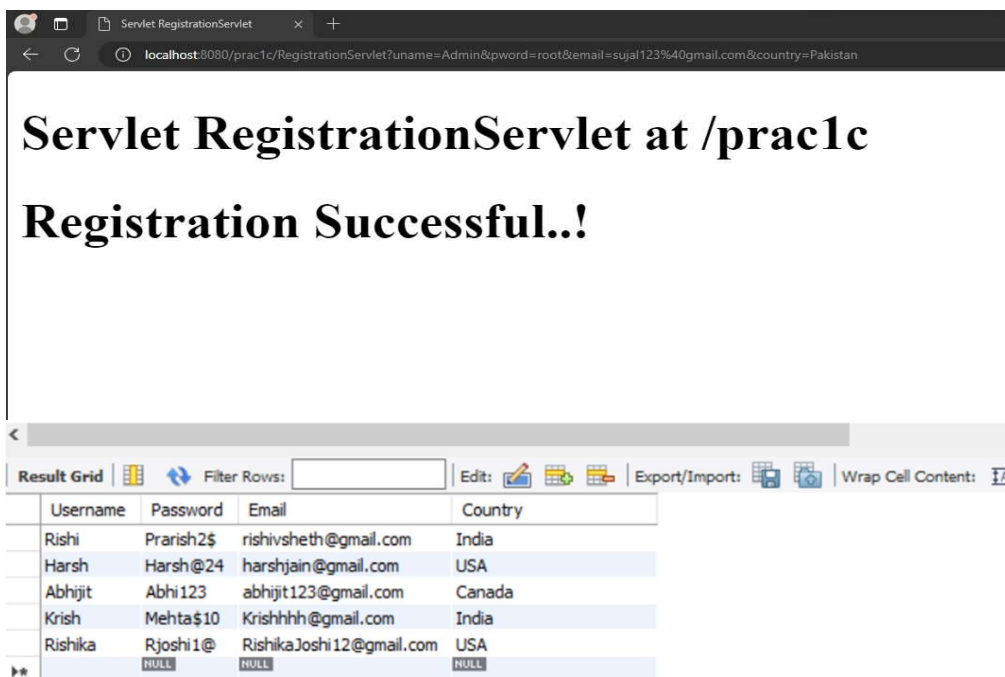
OUTPUT:



## REGISTRATION FORM

Username: Rishi

Password: ••••••••

Email: rishivsheth@gmail.com

Country: India

REGISTER



localhost:8080/prac1c/RegistrationServlet?uname=Admin&pword=root&email=sujal123%40gmail.com&country=Pakistan

# Servlet RegistrationServlet at /prac1c

# Registration Successful..!

| Username | Password | Email | Country |
|----------|----------|-------|---------|
| Rishi | Prarish2$ | rishivsheth@gmail.com | India |
| Harsh | Harsh@24 | harshjain@gmail.com | USA |
| Abhijit | Abhi123 | abhijit123@gmail.com | Canada |
| Krish | Mehta$10 | Krishhhh@gmail.com | India |
| Rishika | Rjoshi1@ | RishikaJoshi12@gmail.com | USA |
| | NULL | NULL | NULL |

# Module 2

Implement the following Servlet applications with Cookies, Sessions, and file handling.

a. Using Request Dispatcher Interface create a Servlet which will validate the password b. 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.

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

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.

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

# THEORY- PRACTICAL 2

**Aim: Implement the following Servlet applications with Cookies, Sessions, and file handling.**

# PRACTICAL 2

## Aim:  Implement the following Servlet applications with Cookies, Sessions, and file handling.

a.  Using Request Dispatcher Interface create a Servlet which will validate the password b. 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:**

```
<!DOCTYPE html>
<!--
To change this license header, choose License Headers in Project Properties.
To change this template file, choose Tools | Templates
and open the template in the editor.
-->
<html>
  <head>
    <title>TODO supply a title</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
  </head>
  <body>
    <form action="LoginServlet">
      Enter UserID : <input type="text" name="uname"><br>
      Enter Password : <input type="password" name="pass"><br>
      <input type="reset" value="Reset">
      <input type="submit" value="Login">
    </form>
  </body>
</html>
```

**LoginServlet.java**

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

```java
import javax.servlet.RequestDispatcher;
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 processRequest(HttpServletRequest request,
HttpServletResponse response)
        throws ServletException, IOException {
      response.setContentType("text/html;charset=UTF-8");
      try (PrintWriter out = response.getWriter()) {
                out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet LoginServlet</title>");
        out.println("</head>");
        out.println("<body bgcolor=red>");
        String s1 = request.getParameter("uname");
        String s2 = request.getParameter("pass");
        if(s1.equals("admini") && s2.equals("root"))
        {
            RequestDispatcher rd =
request.getRequestDispatcher("WelcomeServlet");
            rd.forward(request, response);
        }
        else
        {
            out.println("<h1>Login fail!!</h1>");
            RequestDispatcher rd = request.getRequestDispatcher("index.html");
            rd.include(request,response);
        }
        out.println("</body>");
        out.println("</html>");
      }
    }
```

**WelcomeServlet.java:**

```java
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 processRequest(HttpServletRequest request,
HttpServletResponse response)
        throws ServletException, IOException {
    response.setContentType("text/html;charset=UTF-8");
    try (PrintWriter out = response.getWriter()) {

        out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet WelcomeServlet</title>");
        out.println("</head>");

        out.println("<body bgcolor=green>");
        String s1 = request.getParameter("uname");
        out.println("<h1>"+"Welcome"+s1+"</h1>");

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

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

**Index.html:**

```
<!DOCTYPE html>
<html>
  <head>
    <title>Java Cookies</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
  </head>
  <body>
    <form action="page1">
      Enter Your Name: <input type="text" name="uname" />
      <br>
      <button>Click here to enter....</button>
    </form>
  </body>
</html>
```

**page1.java:**
```
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;

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

        out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet page1</title>");
        out.println("</head>");
        out.println("<body bgcolor=pink>");
```
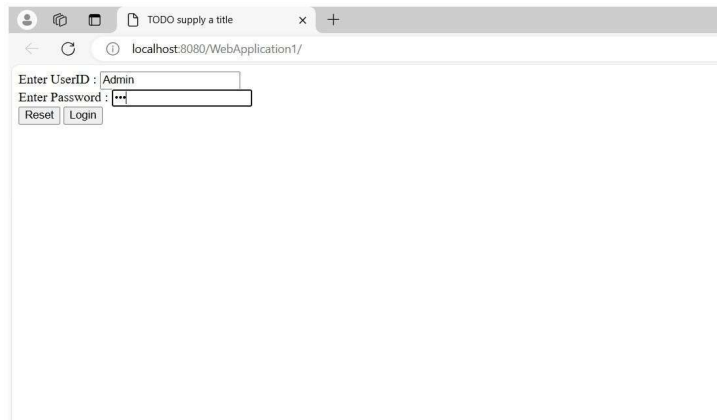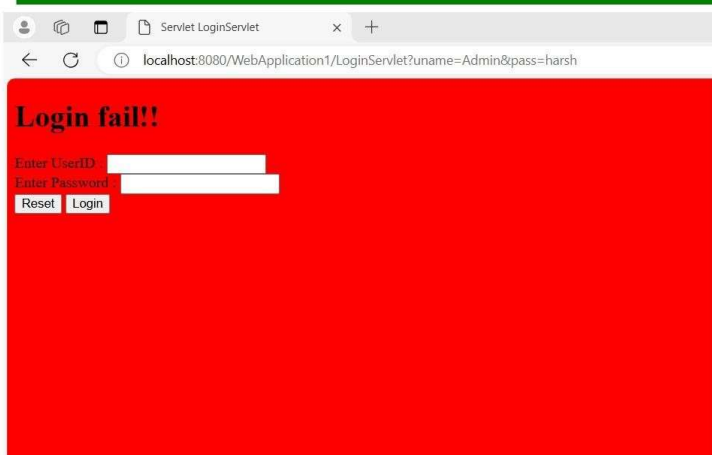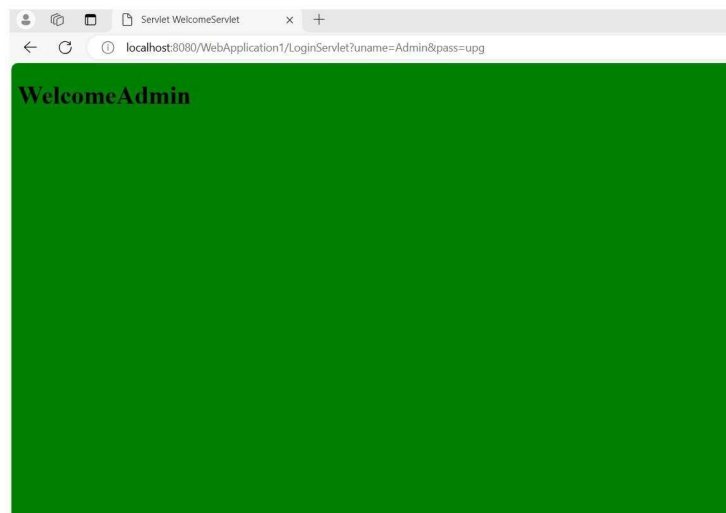
```java
        String s1 = request.getParameter("uname");
        out.println("<h1><center>" + " Welcome " + s1 + "</h1></center>");
        Cookie ck1 = new Cookie("cookie1",s1);
        Cookie ck2 = new Cookie("visit","1");
        response.addCookie(ck1);
        response.addCookie(ck2);


        out.println("<br>");
        out.println("<h3><a href=page2><center>Click here to visit
Page2</a></center></h3>");

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

 **page2.java:**

```java
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;

    protected void processRequest(HttpServletRequest request,
HttpServletResponse response)
        throws ServletException, IOException {
      response.setContentType("text/html;charset=UTF-8");
      try (PrintWriter out = response.getWriter())
        out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet page2</title>");
        out.println("</head>");
        out.println("<body bgcolor=green>");

        Cookie []ck = request.getCookies();
        for(int i=0;i<ck.length;i++)
```

```java
        {
          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("Welcome"+ck[i].getValue());
          }
        }

        out.println("<a href=page3>Click here to visit Page3</a>");
        out.println("<br>");
        out.println("<a href=page4>Click here to visit Page4</a>");
        out.println("<br>");
        out.println("<a href=page5>Click here to visit Page5</a>");
        out.println("<br>");


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

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

}
```

## page3.java:

```java
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;
```

```java
import javax.servlet.http.HttpServletResponse;
    protected void processRequest(HttpServletRequest request,
HttpServletResponse response)
        throws ServletException, IOException {
    response.setContentType("text/html;charset=UTF-8");
    try (PrintWriter out = response.getWriter()) {
            out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet page3</title>");
        out.println("</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("Welcome"+ck[i].getValue());
           }
        }
        out.println("<h3><a href=page2>Click here to visit Page2</a></h3>");
        out.println("<br>");
        out.println("<h3><a href=page4>Click here to visit Page4</a></h3>");
        out.println("<br>");
        out.println("<h3><a href=page5>Click here to visit Page5</a></h3>");
        out.println("<br>");

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

**page4.java:**

```java
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
    protected void processRequest(HttpServletRequest request,
HttpServletResponse response)
        throws ServletException, IOException {
      response.setContentType("text/html;charset=UTF-8");
      try (PrintWriter out = response.getWriter())
        out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet page4</title>");
        out.println("</head>");
        out.println("<body bgcolor=aqua>");

        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("Welcome"+ck[i].getValue());
           }
        }
        out.println("<h3><a href=page2>Click here to visit Page2</a></h3>");
        out.println("<br>");
        out.println("<h3><a href=page3>Click here to visit Page3</a></h3>");
        out.println("<br>");
        out.println("<h3><a href=page5>Click here to visit Page5</a></h3>");
        out.println("<br>");
```

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

  public String getServletInfo() {
    return "Short description";
  }

}
```

**page5.java:**

```
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;
    protected void processRequest(HttpServletRequest request,
HttpServletResponse response)
        throws ServletException, IOException {
      response.setContentType("text/html;charset=UTF-8");
      try (PrintWriter out = response.getWriter())
        out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet page5</title>");
        out.println("</head>");
        out.println("<body bgcolor=purple>");
        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("Welcome"+ck[i].getValue());
        }
    }
    out.println("<h3><a href=page2>Click here to visit Page2</a></h3>");
    out.println("<br>");
    out.println("<h3><a href=page3>Click here to visit Page3</a></h3>");
    out.println("<br>");
    out.println("<h3><a href=page4>Click here to visit Page4</a></h3>");
    out.println("<br>");

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

WelcomeAdmin

# Visit No:5

Click here to visit Page2

Click here to visit Page3

Click here to visit Page4

WelcomeAdmin

# Visit No:2

Click here to visit Page3
Click here to visit Page4
Click here to visit Page5

# Welcome Admin

## Click here to visit Page2

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.

**Index.html:**

```html
<!DOCTYPE html>
<html>
    <head>
        <title>TODO supply a title</title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
    </head>
    <body>
        <form action="page1">
            Enter your Email:<input type="text" name="uname" >
            <br>
            <button>Reset</button>
            <button>Submit</button>

        </form>
        <div>TODO write content</div>
    </body>
</html>
```

**Logout.java:**

```java
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;
    protected void processRequest(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        try (PrintWriter out = response.getWriter()) {
                out.println("<!DOCTYPE html>");
            out.println("<html>");
            out.println("<head>");
            out.println("<title>Servlet LogOut</title>");
```

```
        out.println("</head>");
        out.println("<body bgcolor=red>");


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

**page1.java:**

```
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;
    protected void processRequest(HttpServletRequest request,
HttpServletResponse response)
        throws ServletException, IOException {
      response.setContentType("text/html;charset=UTF-8");
      try (PrintWriter out = response.getWriter();
        out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet page1</title>");
        out.println("</head>");
        out.println("<body bgcolor=yellow>");

        HttpSession hs = request.getSession(true);
        if(hs.isNew())
        {
            out.println("<body bgcolor=yellow>");
            String name  = request.getParameter("uname");
            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("<a href=page2>Click here to visit Page2</a>");
    out.println("<br>");
    out.println("<a href=page3>Click here to visit Page3</a>");
    out.println("<br>");
    out.println("<a href=page4>Click here to visit Page4</a>");
    out.println("<br>");
    out.println("<a href=LogOut>Click here to Terminate session</a>");
    out.println("<br>");

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

### page2.java:

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

        out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet page2</title>");
        out.println("</head>");
```

```java
        out.println("<body bgcolor=pink>");

        HttpSession hs = request.getSession(true);
        if(hs.isNew())
        {
           out.println("<body bgcolor=yellow>");
           String name  = request.getParameter("uname");
           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("<a href=page1>Click here to visit Page1</a>");
        out.println("<br>");
        out.println("<a href=page3>Click here to visit Page3</a>");
        out.println("<br>");
        out.println("<a href=page4>Click here to visit Page4</a>");
        out.println("<br>");
        out.println("<a href=LogOut>Click here to Terminate session</a>");
        out.println("<br>");

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

## page3.java:

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

```java
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
protected void processRequest(HttpServletRequest request,
HttpServletResponse response)
        throws ServletException, IOException {
    response.setContentType("text/html;charset=UTF-8");
    try (PrintWriter out = response.getWriter()) {

        out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet page3</title>");
        out.println("</head>");
        out.println("<body bgcolor=green>");

        HttpSession hs = request.getSession(true);
        if(hs.isNew())
        {
            out.println("<body bgcolor=yellow>");
            String name  = request.getParameter("uname");
            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("<a href=page1>Click here to visit Page1</a>");
        out.println("<br>");
        out.println("<a href=page2>Click here to visit Page2</a>");
        out.println("<br>");
        out.println("<a href=page4>Click here to visit Page4</a>");
        out.println("<br>");
        out.println("<a href=LogOut>Click here to Terminate session</a>");
        out.println("<br>");
```

```
            out.println("</body>");
            out.println("</html>");
        }
    }
```
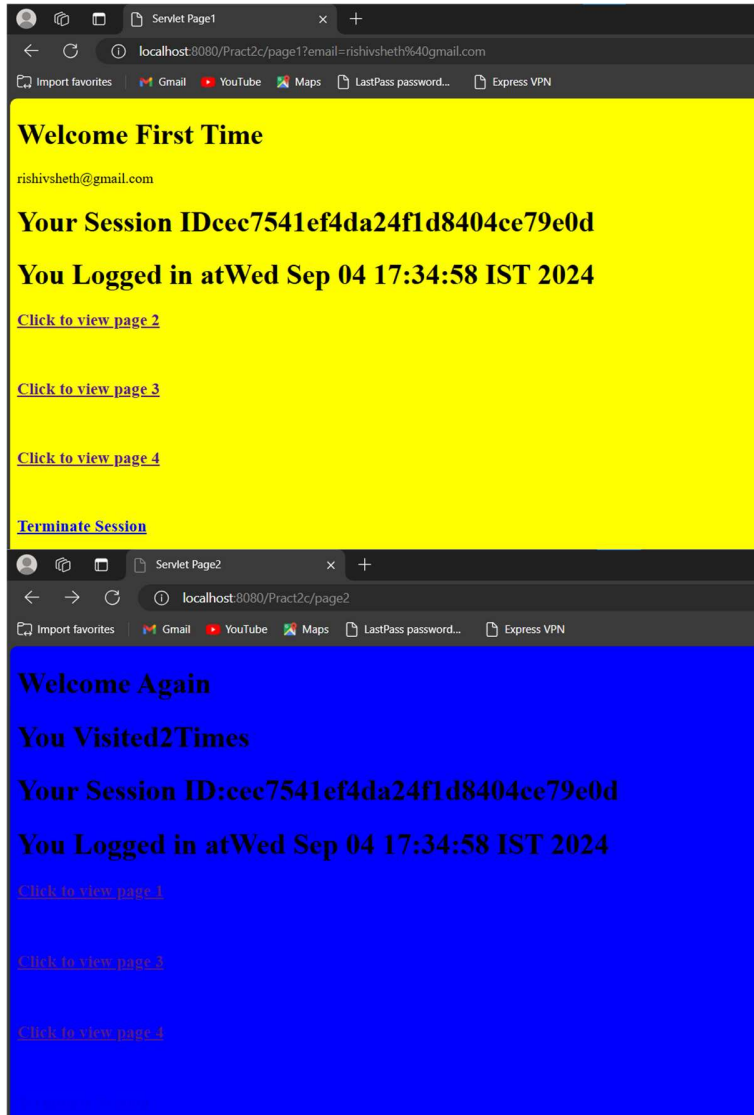
**page4.java:**

```java
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;
    protected void processRequest(HttpServletRequest request,
HttpServletResponse response)
        throws ServletException, IOException {
      response.setContentType("text/html;charset=UTF-8");
      try (PrintWriter out = response.getWriter()) {
        out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet page4</title>");
        out.println("</head>");
        out.println("<body bgcolor=aqua>");
        HttpSession hs = request.getSession(true);
        if(hs.isNew())
        {
           out.println("<body bgcolor=yellow>");
           String name  = request.getParameter("uname");
           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>");
```
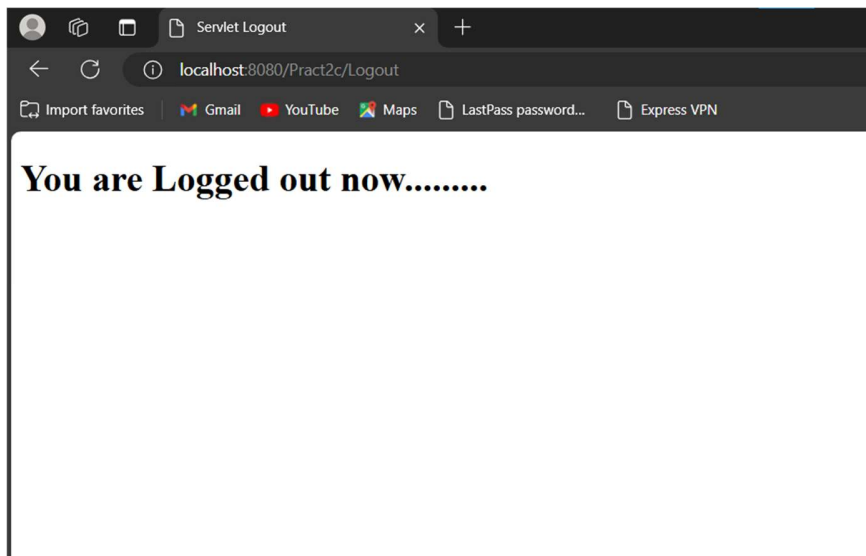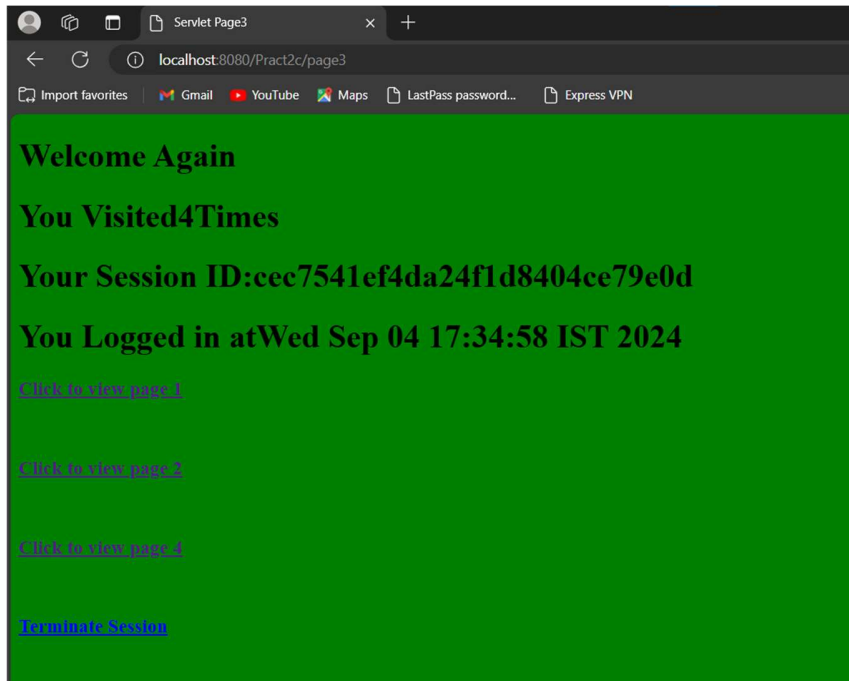
```
out.println("<a href=page1>Click here to visit Page1</a>");
out.println("<br>");
out.println("<a href=page2>Click here to visit Page2</a>");
out.println("<br>");
out.println("<a href=page3>Click here to visit Page3</a>");
out.println("<br>");
out.println("<a href=LogOut>Click here to Terminate session</a>");
out.println("<br>");
out.println("</body>");
out.println("</html>");
}}
```

## d. Create a Servlet application to upload and download a file.

**FileDownloadServlet.java**

```java
import java.io.IOException;
import java.io.InputStream;
import java.io.PrintWriter;
import javax.servlet.ServletContext;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

    protected void processRequest(HttpServletRequest request,
HttpServletResponse response)
        throws ServletException, IOException {
      response.setContentType("text/html;charset=UTF-8");
      try (PrintWriter out = response.getWriter()) {
        /* TODO output your page here. You may use following sample code. */
        out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet FileDownloadServlet</title>");
        out.println("</head>");
        out.println("<body>");

        response.setContentType("application/octet-stream");
        String myFilename = request.getParameter("filename");
        ServletContext context = getServletContext();

        try(InputStream is = context.getResourceAsStream("/" + myFilename))
        {
            response.setContentType("application/octet-stream");
            response.setHeader("Content-Disposition","attachment;filename=\""+
myFilename +"\"");

            int i;
            while((i=is.read()) != -1)
            {
               response.getOutputStream().write(i);
            }
        }
        response.getOutputStream().close();
```

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


    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse
response)
        throws ServletException, IOException {
      processRequest(request, response);
    }


    @Override
    protected void doPost(HttpServletRequest request, HttpServletResponse
response)
        throws ServletException, IOException {
      processRequest(request, response);
    }

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

}
```

**FileUploadServlet.java**
```java
import java.io.File;
import java.io.FileNotFoundException;
import java.io.FileOutputStream;
import java.io.IOException;
import java.io.InputStream;
import java.io.OutputStream;
```

```java
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.annotation.MultipartConfig;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.Part;

@MultipartConfig
public class FileUploadServlet extends HttpServlet {


    protected void processRequest(HttpServletRequest request,
HttpServletResponse response)
        throws ServletException, IOException {
      response.setContentType("text/html;charset=UTF-8");
      try (PrintWriter out = response.getWriter()) {
        /* TODO output your page here. You may use following sample code. */
        out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet FileUploadServlet</title>");
        out.println("</head>");
        out.println("<body>");

        String path = request.getParameter("destination");
        Part filePart = request.getPart("myfile");
        String filename = filePart.getSubmittedFileName();
        out.print("<br><br><hr> file name: "+filename);
        OutputStream os=null;
        InputStream is=null;
        try
        {
          os = new FileOutputStream(new File(path+File.separator+filename));
          is=filePart.getInputStream();
          int read=0;
          while((read = is.read()) != -1)
          {
            os.write(read);
          }

          out.println("<br> File Uploaded Sucessfully...!!!");
```

```java
        }


        catch (FileNotFoundException e)
        {
            out.print(e);
        }


        out.println("</body>");
        out.println("</html>");
    }
}
    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse
response)
        throws ServletException, IOException {
        processRequest(request, response);
    }

    @Override
    protected void doPost(HttpServletRequest request, HttpServletResponse
response)
        throws ServletException, IOException {
        processRequest(request, response);
    }

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

}
```

**index.html**
```html
<!DOCTYPE html>
<html>
    <head>
        <title>TODO supply a title</title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
    </head>
```

```html
    <body>
        <h1>File Upload Application</h1>
        <form action="FileUploadServlet" method="post"
enctype="multipart/form-data">
            Select File to Upload : <input type="file" name="myfile">
            Destination:<input type="text" name="destination">
            <input type="submit" value="Upload File" name="upload" id="upload">
        </form>

        <hr>
        <hr>
        <hr>
        <hr>

        <h1>File Download Application</h1>
        Click <a
href="FileDownloadServlet?filename=File-1.pdf">TYBSc-IT-Syllabus</a>
        <br><br>
        Click <a href="FileDownloadServlet?filename=File-2.pdf">University Exam
Question Paper Nov 2018</a>
    </body>
</html>
```

OUTPUT:

**File Upload Application**

Select File to Upload : [Choose File] No file chosen    Destination:[          ] [Upload File]

**File Download Application**

Click TYBSc-IT-Syllabus

Click University Exam Question Paper Nov 2018

file name: Prac2a.docx
File Uploaded Sucessfully...!!!

# Module 3

## Implement the following JSP & JSTL applications

a. 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).

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

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

d. Create a Currency Converter application using EJB.

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

f. Develop simple shopping cart application using EJB [Stateful Session Bean].

g. Develop simple EJB application to demonstrate Servlet Hit count using Singleton Session Beans.

# THEORY- PRACTICAL 2
**Aim:  Implement the following JSP & JSTL applications**

# PRACTICAL 3

## Aim:  Implement the following JSP & JSTL applications

a. 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**

```
 <!DOCTYPE html>
<!--
To change this license header, choose License Headers in Project Properties.
To change this template file, choose Tools | Templates
and open the template in the editor.
-->
<html>
   <head>
      <title>TODO supply a title</title>
      <meta charset="UTF-8">
      <meta name="viewport" content="width=device-width, initial-scale=1.0">
   </head>
   <body>
      <form action="Validate.jspx" method="post">
         Enter Your Name:<input type="text" name="name">
         <br>
         <br>
         Enter Your Age:<input type="text" name="age">
         <br>
         <br>
         Select Hobbies:<br>
         Singing<input type="checkbox" name="hobbies" value="singing"><br>
         Reading<input type="checkbox" name="hobbies" value="reading"><br>
         Football<input type="checkbox" name="hobbies" value="football"><br>
         <br>
         <br>
         Enter Email:<input type="email" name="email">
         <br>
         <br>
         Select Gender:<br>
         <input type="radio" name="gender" value="Male">Male<br>
```

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```html
        <input type="radio" name="gender" value="Female">Female<br>
        <input type="radio" name="gender" value="Other">Other<br>
        <br>
        <br>
        <input type="hidden" name="error">
        <input type="submit" name="submit" value="submit">
    </form>
  </body>
</html>
```

**CheckerBean.java**
```java
package mypack;

public class CheckerBean
{
    String name,age,hobbies,email,gender,error;
    public void CheckerBean()
    {
        error="";

    }
    public void setName(String n)
    {
        name=n;
    }
    public void setAge(String n)
    {
        age=n;
    }
    public void setHobbies(String n)
    {
        hobbies=n;
    }
    public void setEmail(String n)
    {
        email=n;
    }
    public void setGender(String n)
    {
        gender=n;
    }
    public void setError(String n)
```

```
    {
       error=n;
    }

    public String getName()
    {
       return name;
    }
    public String getAge()
    {
       return age;
    }
    public String getHobbies()
    {
       return hobbies;
    }
    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("") || (name==null))
       {
          error+="<br>Enter First Name";
          res=false;
       }
       if(age.length() > 2 || (age==null))
       {
          error+="<br>Age Invalid";
          res=false;
       }
       return res;
```

```
    }
}
```

## Successful.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <title>Registration Successful !!!</title>
  </head>
  <body>
    <h1>Data Validated Successfully..!</h1>
  </body>
</html>
```

Validate.jspx

```
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.0">
   <jsp:directive.page contentType="text/html" pageEncoding="UTF-8" import =
"mypack.CheckerBean" />

   <!-- any content can be specified here, e.g.: -->
   <jsp:element name="text">
     <jsp:attribute name="lang">EN</jsp:attribute>
     <jsp:body>Validation Page</jsp:body>

     <jsp:useBean id="obj" scope="request" class="mypack.CheckerBean">
       <jsp:setProperty name="obj" property="*"/>
             <jsp:scriptlet>if (obj.validate())
       {
       </jsp:scriptlet>
       <jsp:forward page="Successful.jsp"/>
       <jsp:scriptlet>
       }else {
       </jsp:scriptlet>
       <jsp:include page="index.html"/>
       <jsp:scriptlet>
         }
       </jsp:scriptlet>
       <jsp:expression>obj.getError()</jsp:expression>
         </jsp:useBean>
```

```
        </jsp:element>
        </jsp:root>
```

OUTPUT:





# Data Validated Successfully..!

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

**login.html**
```
<html>
  <head>
    <title>Login Page</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
  </head>
  <body>
    <form action="Login.jsp">
    Enter User Name: <input type="text" name="name"><br>
    Enter Password: <input type="password" name="pass"><br>
    <button value="reset">Reset</button><button value="register">LOGIN</button>
    </form>
  </body>
</html>
```

**index.html**
```
<html>
  <head>
    <title>User Page</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
  </head>
  <body>
    <p>New User? <a href="Registration.html">Click here to register</a></p>
    <p>Old User? <a href="Login.html">Click here to register</a></p>

  </body>
</html>
```

**registeration.html**
```
<html>
  <head>
    <title>Registration Page</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
  </head>
  <body>
    <form action="Registration.jsp">
```

```
    <h1>New User Registration Page</h1>
    Enter user Name: <input type="text" name="name"><br>
    Enter Password: <input type="password" name="pass"><br>
    Re-Enter Password: <input type="password" name="re-pass"><br>
    Enter Email: <input type="email" name="email"><br>
    Enter Country Name: <input type="text" name="country"><br>
    <button value="reset">Reset</button><button value="register">REGISTER</button>
  </form>
 </body>
</html>
```

**registeration.jsp**

```
<%@page contentType="text/html" pageEncoding="UTF-8" import="java.sql.*"%>
<!DOCTYPE html>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <title>JSP Page</title>
  </head>
  <body>
    <%
    //jsp scriptlet
    String s1 = request.getParameter("name");
    String s2 = request.getParameter("pass");
    String s3 = request.getParameter("re-pass");
    String s4 = request.getParameter("email");
    String s5 = request.getParameter("country");

    if(s2.equals(s3))
    {
      //database connectivity
      try
      {
        Class.forName("com.mysql.jdbc.Driver");
        Connection conn =
DriverManager.getConnection("jdbc:mysql://localhost:3306/test","root","root");
        PreparedStatement pst = conn.prepareStatement("insert into registration values(?,?,?,?)");
        pst.setString(1,s1);
        pst.setString(2,s2);
        pst.setString(3,s4);
        pst.setString(4,s5);
        int rows = pst.executeUpdate();
        if(rows==1)
        {
```

```
                    out.println("Registration successful..!!");
                }
                else
                {
                    out.println("Registration failerd..!Try once again");
                    %>
                    <jsp:include page="Registration.html"></jsp:include>
                    <%
                }
            }
            catch(Exception e)
            {

            }
        }
        else
        {
            out.println("Password mismatch...!,Register once again");
            %>
            <jsp:include page="Registration.html"></jsp:include>
            <%
        }
        %>
    </body>
</html>
```
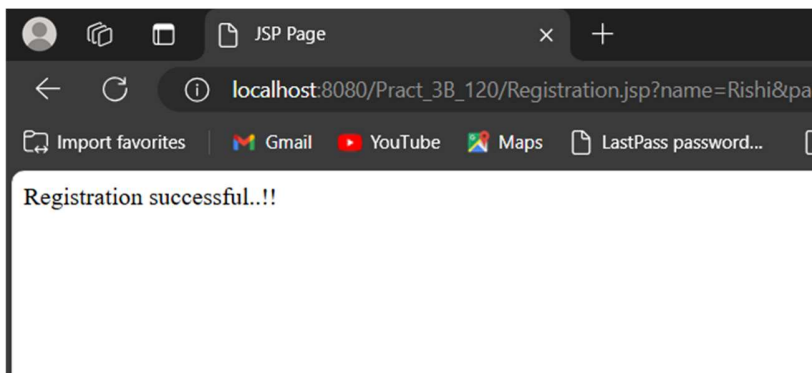
**login.jsp**

```
<%@page contentType="text/html" pageEncoding="UTF-8" import="java.sql.*"%>
<!DOCTYPE html>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <title>JSP Page</title>
  </head>
  <body>
    <%
    //jsp scriptlet
    String s1 = request.getParameter("name");
    String s2 = request.getParameter("pass");
    try
    {
      //database connectivity
      Class.forName("com.mysql.jdbc.Driver");
      Connection conn = DriverManager.getConnection("jdbc:mysql://localhost:3306/test","root","root");
      PreparedStatement pst = conn.prepareStatement("select * from  registration where username=?");
      pst.setString(1,s1);
      ResultSet rs = pst.executeQuery();
```
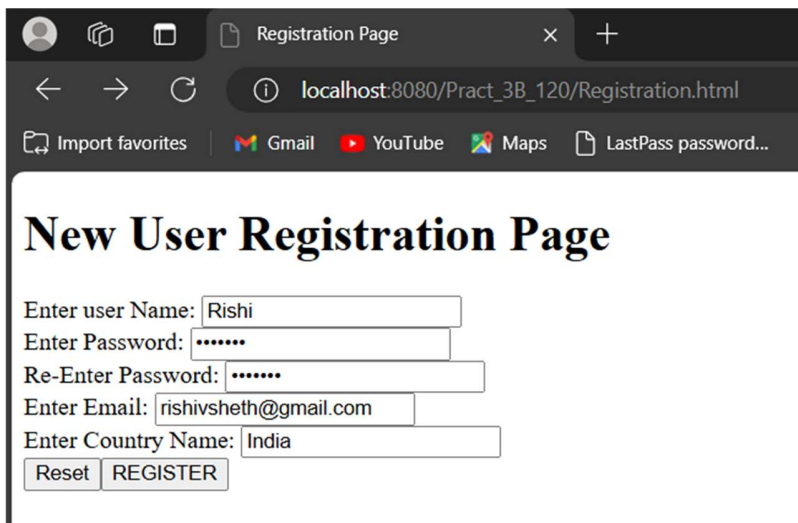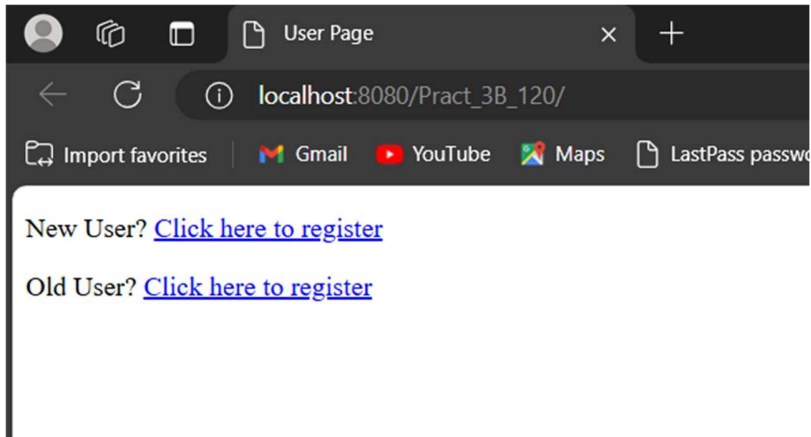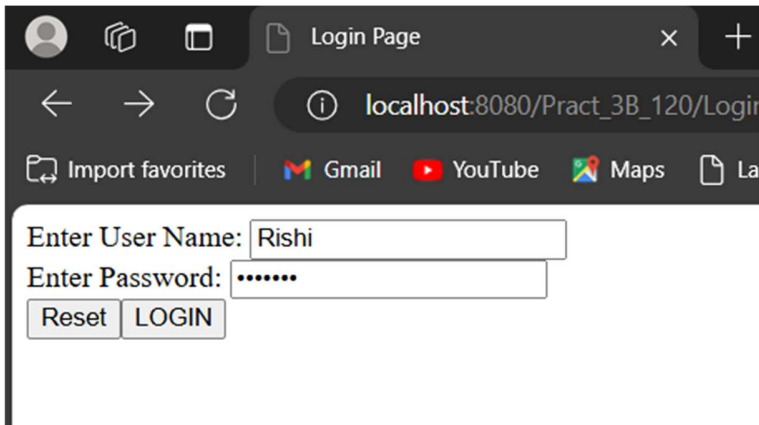
```
if(rs.next())
{
  if(rs.getString(2).equals(s2))
  {
    out.println("Login successful....!!");
  }
  else
  {
    out.println("Password incorrect....!!,please try again");
    %>
    <jsp:include page="Login.html"></jsp:include>
    <%
  }
}
else
{
  out.println("Username does not exist. Please register ");
  %>
  <jsp:include page="Registration.html"></jsp:include>
  <%
}
}
catch(Exception e)
{
  out.println("Exception"+e);
}
%>
</body>
</html>
```
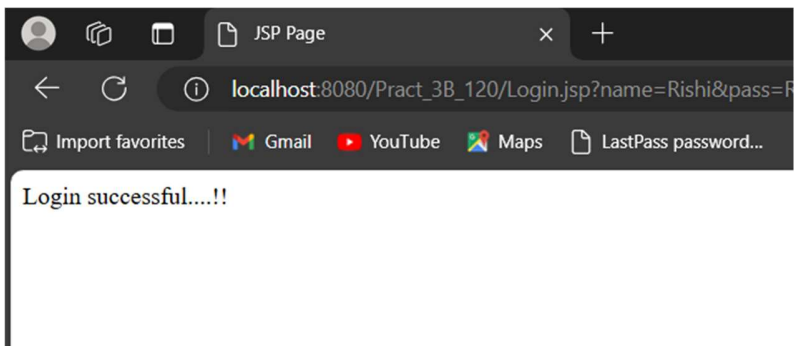
OUTPUT:

New User? Click here to register

Old User? Click here to register

# New User Registration Page
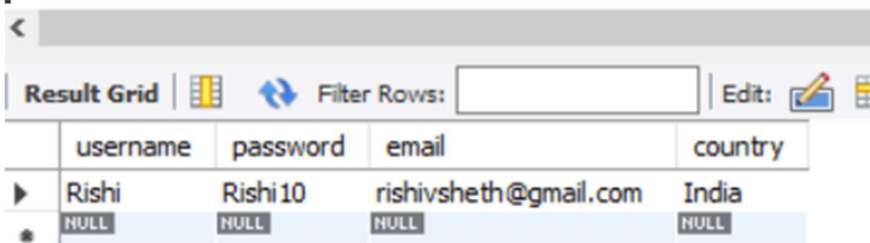
Enter user Name: Rishi
Enter Password: •••••••
Re-Enter Password: •••••••
Enter Email: rishivsheth@gmail.com
Enter Country Name: India
Reset | REGISTER

Registration successful..!!

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

**index.html**
```
<!DOCTYPE html>
<!--
To change this license header, choose License Headers in Project Properties.
To change this template file, choose Tools | Templates
and open the template in the editor.
-->
<html>
    <head>
        <title>Jsp Module</title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
    </head>
    <body>

        <h1>Choose Option</h1>
        <a href="insert.jsp">Insert Record</a><br><br>
        <a href="display.jsp">Display Record</a>
    </body>
</html>
```

**update.jsp**
```
<%@page contentType="text/html" pageEncoding="UTF-8"
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/test" user="root" password="root"/>
      <sql:query dataSource="${dbsource}" var="result">
        SELECT * from product_details120 WHERE pid=?;
        <sql:param value="${param.pid}"/>
      </sql:query>
        <h3>Update</h3>
        <form action="updatedb.jsp">
          <table>
            <tr>
              <th>Product Name</th>
              <th>Quantity</th>
            </tr>
            <c:forEach var="row" items="${result.rows}">
            <tr>

              <td><input type="hidden" value="${param.pid}" name="pid" >
              <input type="text" value="${param.pname}" name="pname">
              </td>
              <td><input type="text" value="${param.quantity}"
name="quantity"></td>
              <td><input type="submit" value="Update"></td>
                    </tr>
          </c:forEach>
                  </table>
          <a href="index.html">Go Home</a>
        </form>
    </body>
</html>
```

**updated.jsp**
```
<%@page contentType="text/html" pageEncoding="UTF-8"
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/test" user="root" password="root"/>
      <sql:update dataSource="${dbsource}" var="count">
      UPDATE product_details120 SET pname=?, quantity=? WHERE
pid='${param.pid}';
      <sql:param value="${param.pname}"/>
      <sql:param value="${param.quantity}"/>
      </sql:update>
      <c:if test="${count>=1}">
        <font size="5" color="green"> wohohohohohohoho data updated </font><br>
        <a href="index.html">Go Home</a>
      </c:if>
    </body>
</html>
```

**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 Insert Page</title>
  </head>
  <body>
    <form action="insertdb.jsp">
      <table border="1">
        <tr>
          <th colspan="2"> Purchase Product</th>
        </tr>
        <tr>
          <td>Product Id</td>
          <td><input type="number" name="pid"></td>
        </tr>
        <tr>
          <td>Product Name</td>
          <td><input type="text" name="pname"></td>
        </tr>
        <tr>
          <td>Quantity</td>
          <td><input type="number" name="quantity"></td>
```

```
        </tr>
        <tr>
          <td><input type="submit" name="save" value="Save"></td>
          <td><input type="reset" name="reset" value="Reset"></td>
        </tr>
      </table>
    </form>
    <font color="red">
    <c:if test="${not empty param.errMsg}">
      <c:out value="${param.errMsg}"/>
      <a href="index.html">Go Back</a>
    </c:if>
    </font>
    <font color="green">
    <c:if test="${not empty param.susMsg}">
      <c:out value="${param.susMsg}"/>
      <a href="index.html">Go Back</a>
    </c:if>
    </font>
  </body>
</html>
```

**inserted.jsp**
```
<%@page contentType="text/html" pageEncoding="UTF-8"
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>
    <c:if test="${empty param.pid or empty param.pname or empty param.quantity}">
      <c:redirect url="insert.jsp">
        <c:param name="errMsg" value="Please enter product details"/>
      </c:redirect>
    </c:if>
    <sql:setDataSource var="dbsource" driver="com.mysql.jdbc.Driver"
url="jdbc:mysql://localhost/test" user="root" password="root"/>
    <sql:update dataSource="${dbsource}" var="result">
```

```
Insert into product_details120 VALUES(?,?,?)
<sql:param value="${param.pid}"/>
<sql:param value="${param.pname}"/>
<sql:param value="${param.quantity}"/>
</sql:update>
<c:if test="${result>=1}">
    <font size="5" color="green">Data inserted</font>
    <c:redirect url="insert.jsp">
        <c:param name="susMsg" value="Data inserted"/>
    </c:redirect>
</c:if>
</body>
</html>
```

**display.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 display Page</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/test" user="root" password="root"/>
        <sql:query dataSource="${dbsource}" var="result">
        SELECT * from product_details120;
        </sql:query>
        <form action="">
            <center>
            <table border="1">
                <tr>
```

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```
            <th>Product ID</th>
            <th>Product Name</th>
            <th>Product Quantity</th>
            <th colspan="2">Action</th>
        </tr>
        <c:forEach var="row" items="${result.rows}">
          <tr>
            <td><c:out value="${row.pid}"/></td>
            <td><c:out value="${row.pname}"/></td>
            <td><c:out value="${row.quantity}"/></td>
            <td><a href="update.jsp?pid=<c:out
value="${row.pid}"/>">update</a></td>
            <td><a href="javascript:confirmGo('Sure to delete this
record?','deletedb.jsp?pid=<c:out value="${row.pid}"/>')">Delete</a></td>
          </tr>
        </c:forEach>
      </table>
    </form>
      <a href="index.html">Go Home</a>
    </center>
  </body>
</html>
```

**delete.jsp**
```
<%@page contentType="text/html" pageEncoding="UTF-8"
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>Delete JSP Page</title>
  </head>
  <body>
    <sql:setDataSource var="dbsource" driver="com.mysql.jdbc.Driver"
url="jdbc:mysql://localhost/test" user="root" password="root"/>

    <sql:update dataSource="${dbsource}" var="count">
      DELETE FROM product_details120 WHERE pid='${param.pid}';
```
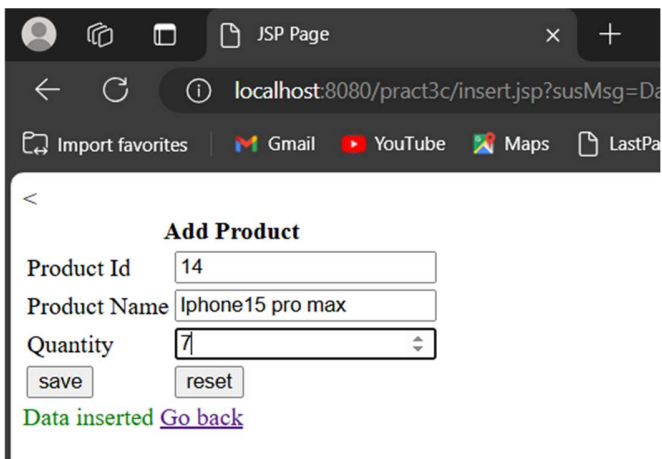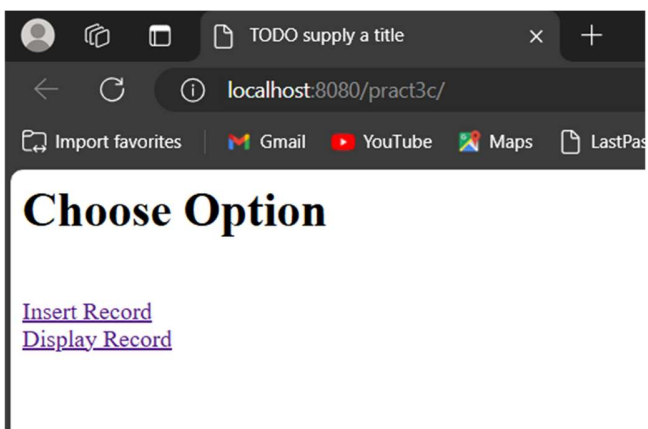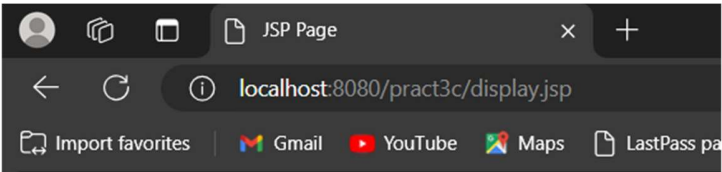
```
        </sql:update>

        <c:if test="${count>=1}">
            <font size="5" color="green"> Data deleted successfully! </font><br>
            <a href="index.html">Go Home</a>
        </c:if>
    </body>
</html>
```
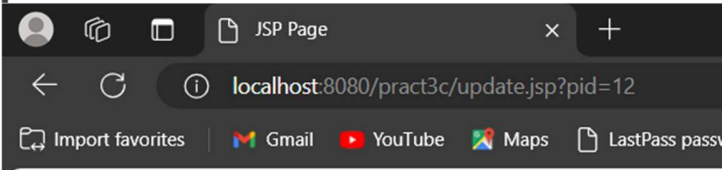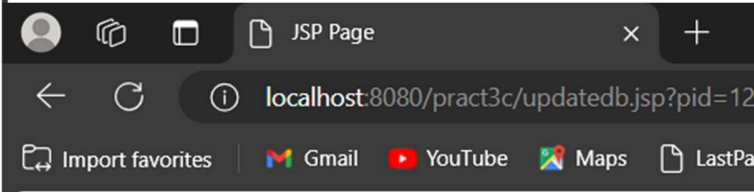
OUTPUT:

| Product Id | Product Name | Quantity | action |
|---|---|---|---|
| 12 | Iphone | 1 | update Delete |
| 13 | S22 Ultra | 5 | update Delete |
| 14 | Iphone15 pro max | 7 | update Delete |

localhost:8080/pract3c/update.jsp?pid=12

**Update**

| Product Name | Quantity | |
|---|---|---|
| Iphone13 | 4 | Update |

Go Home

localhost:8080/pract3c/updatedb.jsp?pid=12

data updated
Go Home

## d. Create a Currency Converter application using EJB.

**CCBean.java**

```java
package mybean;
import javax.ejb.Stateless;
@Stateless
public class CCBean {
    public CCBean(){}
    public double r2Dollar(double r){
       return r/83.90;
    }
    public double d2Rupees(double d){
       return d*83.90;
    }
}
```

**CCServlet.java**

```java
import java.io.IOException;
import java.io.PrintWriter;
import javax.ejb.EJB;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import mybean.CCBean;

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

public class ccservlet extends HttpServlet {

  @EJB
  CCBean obj;


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

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

            out.println("<!DOCTYPE html>");
            out.println("<html>");
            out.println("<head>");
            out.println("<title>Servlet ccservlet</title>");
            out.println("</head>");
            out.println("<body>");

            double amt = Double.parseDouble(request.getParameter("amount"));
            if (request.getParameter("r1").equals("r2d"))
            {
                double result = obj.r2Dollar(amt);
                out.println("Dollar = "+result);
            }
            else{
                double result = obj.d2Rupees(amt);
                out.println("Rupees = "+result);
            }
            out.println("</body>");
            out.println("</html>");
        }
    }

    // <editor-fold defaultstate="collapsed" desc="HttpServlet methods. Click on the + sign
on the left to edit the code.">

    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        processRequest(request, response);
    }
    @Override
    protected void doPost(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        processRequest(request, response);
    }

    @Override
    public String getServletInfo() {
        return "Short description";
```

```
    }// </editor-fold>
}
```

index.html
```html
<!DOCTYPE html>
<html>
  <head>
    <title>Module 3d</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
  </head>
  <body>
    <form action="ccservlet">
      Enter amount <input type="text" name="amount"><br>
      Select Conversion Type:<input type="radio" name="r1" value="r2d">Rupees to
Dollar
                    <input type="radio" name="r1" value="d2r">Dollar to Rupees
<br>
      <input type="reset" value="RESET">
      <input type="Submit" value="CONVERT">
    </form>
  </body>
</html>
```
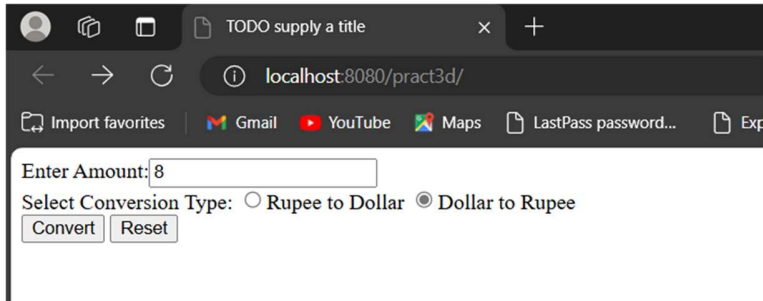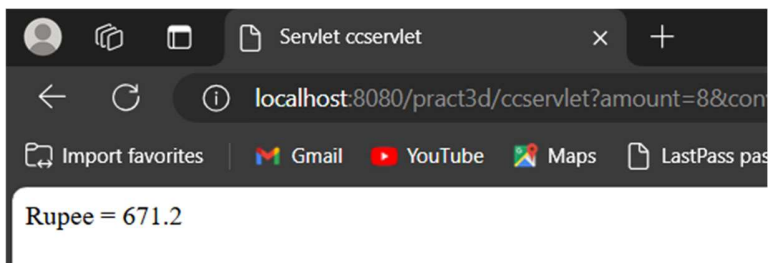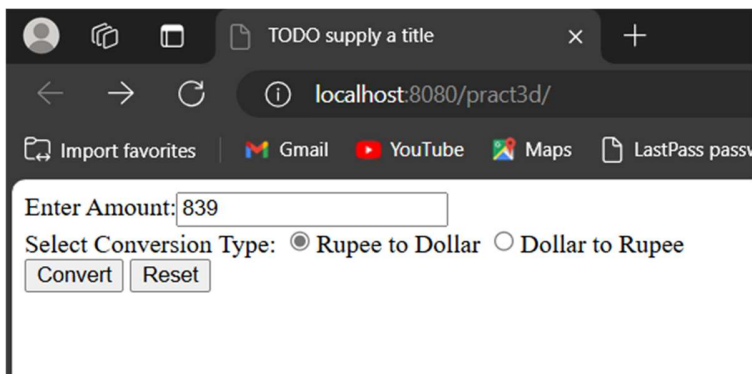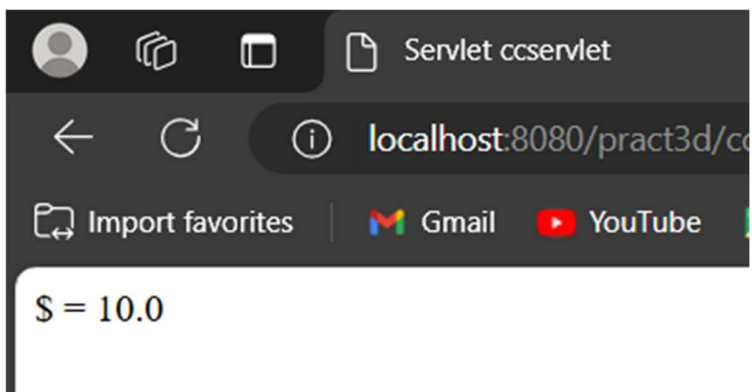
OUTPUT:



Enter Amount: 8
Select Conversion Type: ○ Rupee to Dollar ● Dollar to Rupee
Convert  Reset



Rupee = 671.2



Enter Amount: 839
Select Conversion Type: ● Rupee to Dollar ○ Dollar to Rupee
Convert  Reset



$ = 10.0

## e. Develop a simple Room Reservation System Application using EJB.

**Index.html**

```html
<!DOCTYPE html>
<!--
To change this license header, choose License Headers in Project Properties.
To change this template file, choose Tools | Templates
and open the template in the editor.
-->
<html>
  <head>
    <title>TODO supply a title</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
  </head>
  <body>
    <form action="RBservlet">
      <h1>Room Booking</h1>
      Customer name:<input type="text" name="cust">
      <br>
      <br>

      Mobile Number: <input type="number" name="mob">
      <br>
      <br>
      Room Type:
      <input type="radio" name="room" value="delux">Delux
      <input type="radio" name="room" value="superdelux">Super Delux
      <input type="radio" name="room" value="Suit">Suit
      <br>
      <br>
      <input type="submit" value="Book Room">
    </form>
  </body>
</html>
```

**RRBean.java**

```java
package myBean;
```

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```
import javax.ejb.Stateful;
import java.sql.*;

/**
 *
 * @author Admin
 */
@Stateful
public class RRBean {
    public RRBean(){}
    public String roombooking(String cn, String cm,String rt){
        String message = "";
        try {
            Class.forName("com.mysql.jdbc.Driver");
            Connection conn =
DriverManager.getConnection("jdbc:mysql://localhost:3306/test","root","root");
            String query ="SELECT *FROM roombook_63 WHERE statusroom ='Not Booked' AND
roomtype = ?";
            PreparedStatement pst = conn.prepareStatement(query);
            pst.setString(1,rt);
            ResultSet rs = pst.executeQuery();

            if(rs.next()){
                String rno = rs.getString(1);
            PreparedStatement pst1 = conn.prepareStatement("UPDATE roombook_63 SET cust =
            ?,mob=? ,statusroom='Booked' WHERE roomid = ?");
                pst1.setString(1,cn);
                pst1.setString(3, rno);
                pst1.setString(2,cm);
                pst1.executeUpdate();
                message = " room "+rt+" booked and charges ="+rs.getString(3);
            }
            else{
             message = "room"+rt+"currently not available";
            }
        }
        catch(Exception e){
          message = ""+e;
        }
```

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```
        return message;
    }
}
```

**RBservlet.java**
```java
import java.io.IOException;
import java.io.PrintWriter;
import javax.ejb.EJB;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import myBean.RRBean;
/**
 *
 * @author Admin
 */
@WebServlet(urlPatterns = {"/RBservlet"})
public class RBservlet extends HttpServlet {
    @EJB
    RRBean obj;

    protected void processRequest(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        try (PrintWriter out = response.getWriter()) {
            /* TODO output your page here. You may use following sample code. */
            out.println("<!DOCTYPE html>");
            out.println("<html>");
            out.println("<head>");
            out.println("<title>Servlet RBservlet</title>");
            out.println("</head>");
            out.println("<body>");
            String cn=request.getParameter("cust");
            String cm=request.getParameter("mob");
            String rt=request.getParameter("room");
            String message = obj.roombooking(cn,cm,rt);
```
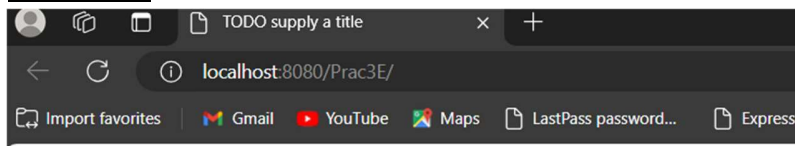
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```
        out.println(message);


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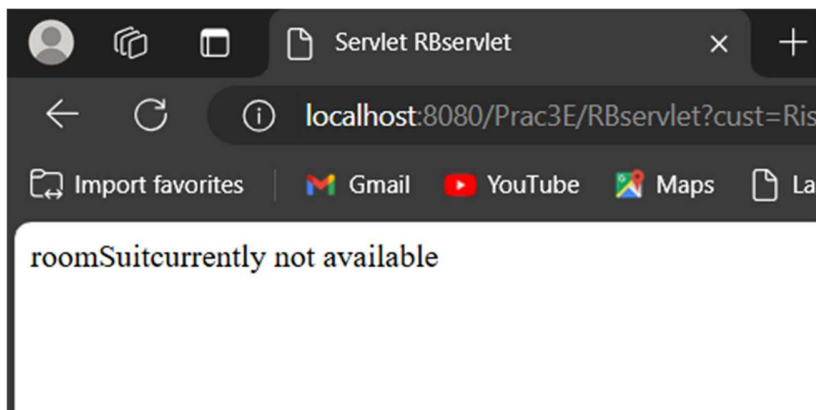
OUTPUT:

## f. Develop a simple Shopping Cart Application using EJB [Stateful Session Bean].

### index.jsp

```jsp
<%@page import="java.util.Iterator, java.util.List, javax.naming.InitialContext,
javax.naming.NamingException, ejb.ShoppingCart"%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<%!
private static ShoppingCart cart;

public void jspInit() {
   try {
      InitialContext ic = new InitialContext();
      cart = (ShoppingCart) ic.lookup("java:global/ShoppingCart/ShoppingCart");
   } catch (NamingException ex) {
      // Log the exception and provide a user-friendly message
      System.err.println("Could not create cart bean: " + ex.getMessage());
      ex.printStackTrace();
   }
}
%>
<%
if(cart != null) {
   String customerName = request.getParameter("txtCustomerName");
   if (customerName != null && !customerName.isEmpty()) {
      cart.initialize(customerName);
   } else {
      cart.initialize("Guest");
   }

   if (request.getParameter("btnRmvBook") != null) {
      String[] books = request.getParameterValues("chkBook");
      if (books != null) {
         for (String book : books) {
            cart.removeBook(book);
         }
      }
   }
```

```
    if (request.getParameter("btnAddBook") != null) {
        String[] books = request.getParameterValues("chkBook");
        if (books != null) {
            for (String book : books) {
                cart.addBook(book);
            }
        }
    }
} else {
    out.println("<p>Error: ShoppingCart bean is not available.</p>");
}
%>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Shopping Cart</title>
</head>
<body style="background-color: pink;">
<h1 style="text-align: center;">Books For Sale</h1><br>
<form name="frmBooks" method="post" action="index.jsp">
<table style="background-color: pink; width: 100%; padding: 1px; border-spacing: 1px;">
<tr style="background-color: pink;">
<td style="width: 70%">
<table style="padding: 1px 1px 1px 1px; border-spacing: 1px; border: 2px solid maroon; width: 400px;">
<tr>
<td style="border: 2px solid maroon;">Customer</td>
<td style="border: 2px solid maroon;">
<input type="text" name="txtCustomerName" value="<%=
request.getParameter("txtCustomerName") != null ? request.getParameter("txtCustomerName") : ""
%>" />
</td>
</tr>
<tr style="background-color: maroon;">
<th style="text-align: left; width: 340px; color: white; border: 2px solid maroon;" colspan="2">
<b>Book Titles</b>
</th>
</tr>
<tr>
<td style="border: 2px solid maroon;">
<input type="checkbox" name="chkBook" value="Struts 2.0 For Beginners">
</td>
<td style="width: 340px; border: 2px solid maroon;">Struts 2.0 For Beginners</td>
```

```html
</tr>
<tr>
<td style="border: 2px solid maroon;">
<input type="checkbox" name="chkBook" value="Oracle 11g For Professionals">
</td>
<td style="width: 340px; border: 2px solid maroon;">Oracle 11g For Professionals</td>
</tr>
<tr>
<td style="border: 2px solid maroon;">
<input type="checkbox" name="chkBook" value="Hibernate 3 For Beginners">
</td>
<td style="width: 340px; border: 2px solid maroon;">Hibernate 3 For Beginners</td>
</tr>
<tr>
<td style="border: 2px solid maroon;">
<input type="checkbox" name="chkBook" value="Java Persistence API In EJB 3 For Beginners">
</td>
<td style="width: 340px; height: 24px; border: 2px solid maroon;">Java Persistence API In EJB 3
For Beginners</td>
</tr>
<tr>
 <td colspan="4" style="border: 2px solid maroon;">
 <table style="background-color: pink; text-align: center;">
 <tr>
 <td style="text-align: center;">
 <input type='submit' value='Add To My Basket' name='btnAddBook'>
 </td>
<td style="text-align: center;">
 <input type='submit' value='Remove From My Basket' name='btnRmvBook'>
 </td>
 </tr>
 </table>
 </td>
 </tr>
 </table>
 </td>
 <td>
 <table style="border: 1px solid blue; width: 300px; height: 180px; text-align: right;">
 <tr>
 <td style="text-align: center; background-color: lightblue; border: 1px solid blue; height:
20px;">Basket</td>
 </tr>
 <%
 if(cart != null){
```

```
List<String> bookList = cart.getContents();
Iterator<String> iterator = bookList.iterator();
while (iterator.hasNext()) {
String title = iterator.next();
%>
<tr>
<td style="text-align: left; background-color: lightblue; border: 1px solid blue;"><%= title %></td>
</tr>
<%
}
}
%>
</table>
</td>
</tr>
</table>
</form>
</body>
</html>
```

### ShoppingCart.java

```
package ejb;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;
import java.util.ArrayList;
import java.util.List;
import javax.ejb.Remove;
import javax.ejb.Stateful;
@Stateful
public class ShoppingCart {
 List<String> contents;
 String customerName;
 private Connection conn = null;
 private ResultSet rs;
 private Statement stmt = null;
 private String query = null;
 public void initialize(String person) {
if (person != null) {
customerName = person;
try {
```

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```
 Class.forName("com.mysql.jdbc.Driver").newInstance();
 conn = DriverManager.getConnection("jdbc:mysql://localhost/test", "root", "root");
 }
catch(ClassNotFoundException | IllegalAccessException | InstantiationException | SQLException e)
{
System.err.println("Sorry failed to connect to the Database." + e.getMessage());
 }
 }
 contents = new ArrayList<>();
 }
 public void addBook(String title) {
 try {
 stmt = conn.createStatement();
 query = "INSERT INTO cart VALUES('" + customerName + "','" + title + "')";
 stmt.executeUpdate(query);
 } catch(SQLException e) {
 System.err.println("Sorry failed to insert values from the database table. " + e.getMessage());
 }
 }
public void removeBook(String title) {
 try {
 stmt = conn.createStatement();
 query = "DELETE FROM cart WHERE UserName='" + customerName + "' AND ItemName='" +
title + "'";
 stmt.executeUpdate(query);
 } catch(SQLException e) {
 System.err.println("Sorry failed to delete values from the database table. " + e.getMessage());
 }
 }
 public List<String> getContents() {
 try {
 stmt = conn.createStatement();
 query = "SELECT * FROM cart WHERE UserName='" + customerName + "'";
 rs = stmt.executeQuery(query);
 while(rs.next()) {
 contents.add(rs.getString("ItemName"));
 }
 } catch(SQLException e) {
 System.err.println("Sorry failed to select values from the database table. " + e.getMessage());
 }
 return contents;
 }
 @Remove()
 public void remove() {
```

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```
    contents = null;
    }
}
```

OUTPUT:
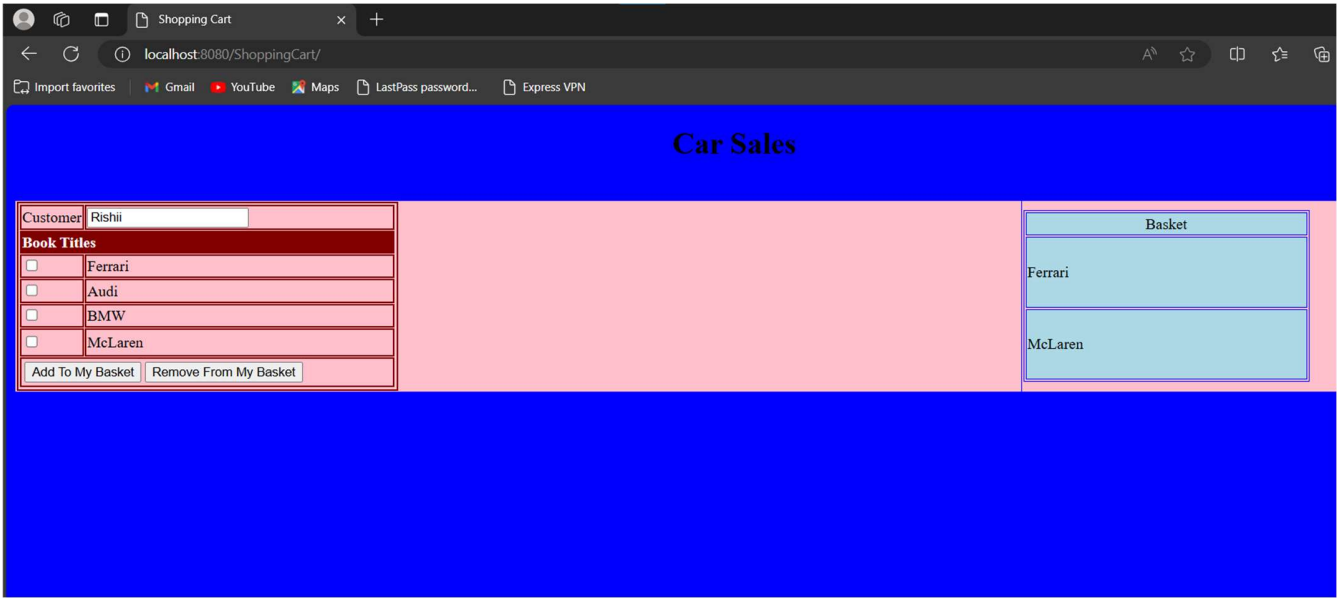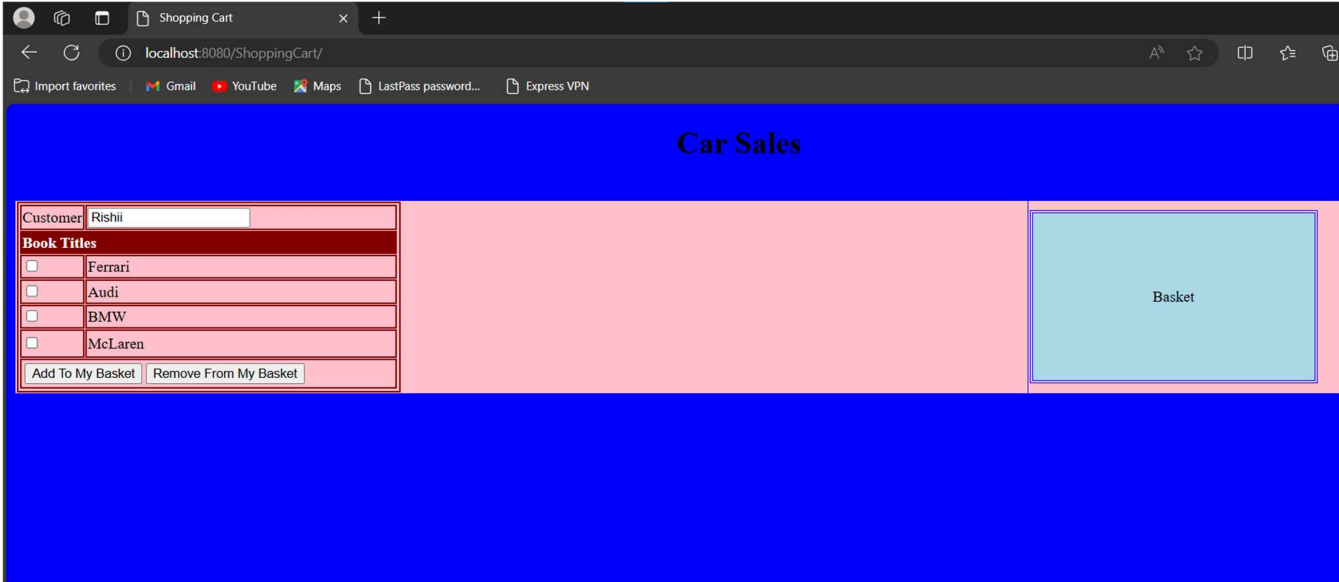
g. Develop a simple EJB Application to demonstrate Servlet Hit count using Singleton Session Beans.

**CountServletHitsBean.java**

```java
package ejb;
import javax.ejb.Singleton;

/**
 *
 * @author Admin
 */
@Singleton
public class CountServletHitsBean {

  private int hitCount;

  public synchronized int incrementAndGetHitCount(){
     return hitCount++;
  }
}
```

**ServletClient.java**

```java
package servlet;
import ejb.CountServletHitsBean;
import java.io.IOException;
import java.io.PrintWriter;
import javax.ejb.EJB;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

/**
 *
 * @author Admin
 */
@WebServlet(name = "ServletClient", urlPatterns = {"/ServletClient"})
public class ServletClient extends HttpServlet {
```

```java
@EJB
   CountServletHitsBean counterBean;

   /**
    * Processes requests for both HTTP <code>GET</code> and <code>POST</code>
    * methods.
    *
    * @param request servlet request
    * @param response servlet response
    * @throws ServletException if a servlet-specific error occurs
    * @throws IOException if an I/O error occurs
    */
   protected void processRequest(HttpServletRequest request, HttpServletResponse response)
         throws ServletException, IOException {
      response.setContentType("text/html;charset=UTF-8");
      try (PrintWriter out = response.getWriter()) {
         /* TODO output your page here. You may use following sample code. */
         out.println("<!DOCTYPE html>");
         out.println("<html>");
         out.println("<head>");
         out.println("<title>Servlet ServletClient</title>");
         out.println("</head>");
         out.println("<body>");
         out.println("<h1>Number of time this servlet is accesseed:" +
counterBean.incrementAndGetHitCount() + "</h1>");
         out.println("</body>");
         out.println("</html>");
      }
   }

}
```

## OUTPUT:

Number of time this servlet is accesseed:10