PRACTICAL LIST – 4

Index.html FILE

```html
<!DOCTYPE html>
<html>
    <head>
        <title>Practical List - 4</title>
        <link rel="stylesheet" href="css/style.css" type="text/css"/>
                                                <link
href="https://fonts.googleapis.com/css2?family=Inter:wght@400;500;700&displ
ay=swap" rel="stylesheet" />
    </head>
    <body>
        <div class="form">
            <h1 class="text-heading">GO TO YOUR DESIRE PRACTICAL</h1>
            <table cellspacing="0" cellpadding="8" align="center">
                <tr>
                    <form  action="AJAVA_P_4-1.html" method="POST">
                            <td  colspan="2"><input  class="btn  submit"
type="submit" value="GO TO PRACTICAL 4.1" name="AJAVA_P_4-1"></td>
                    </form>
                </tr>
                <tr>
                    <form  action="initparameter" method="POST">
                            <td  colspan="2"><input  class="btn  submit"
type="submit" value="GO TO PRACTICAL 4.2" name="AJAVA_P_4-2"></td>
                    </form>
                </tr>
                <tr>
                    <form  action="AJAVA_P_4-3.html" method="POST">
                            <td  colspan="2"><input  class="btn  submit"
type="submit" value="GO TO PRACTICAL 4.3" name="AJAVA_P_4-3"></td>
                    </form>
                </tr>
                <tr>
                    <form  action="AJAVA_P_4-4.html" method="POST">
                            <td  colspan="2"><input  class="btn  submit"
type="submit" value="GO TO PRACTICAL 4.4" name="AJAVA_P_4-4"></td>
                    </form>
                </tr>
                <tr>
                    <form  action="counterServlet" method="POST">
                            <td  colspan="2"><input  class="btn  submit"
type="submit" value="GO TO PRACTICAL 4.5" name="AJAVA_P_4-5"></td>
                    </form>
                </tr>
                <tr>
                    <form  action="AJAVA_P_4-6.html" method="POST">
                            <td  colspan="2"><input  class="btn  submit"
type="submit"  value="GO  TO  PRACTICAL  4.6  Session"  name="AJAVA_P_4-6
Session"></td>
                    </form>
```

```
                    </tr>
                    <tr>
                        <form  action="AJAVA_P_4-6_Cookie.html" method="POST">
                                    <td colspan="2"><input class="btn  submit"
type="submit"   value="GO   TO   PRACTICAL   4.6   Cookie"   name="AJAVA_P_4-6
Cookie"></td>
                        </form>
                    </tr>
                </table>
            </div>
        </body>
</html>
```

<p align="center">**Web.xml FILE**</p>

```
<?xml version="1.0" encoding="UTF-8"?>

<web-app xmlns="http://xmlns.jcp.org/xml/ns/javaee"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee     http://xmlns
.jcp.org/xml/ns/javaee/web-app_3_1.xsd"
        version="3.1">
    <session-config>
        <session-timeout>
            30
        </session-timeout>
    </session-config>
    <servlet>
        <servlet-name>firstServlet</servlet-name>
        <servlet-class>FirstServlet</servlet-class>
    </servlet>
    <servlet-mapping>
        <servlet-name>firstServlet</servlet-name>
        <url-pattern>/add</url-pattern>
    </servlet-mapping>

    <servlet>
        <servlet-name>secondServlet</servlet-name>
        <servlet-class>SecondServlet</servlet-class>
    </servlet>
    <servlet-mapping>
        <servlet-name>secondServlet</servlet-name>
        <url-pattern>/square</url-pattern>
    </servlet-mapping>

    <servlet>
        <servlet-name>thirdServlet</servlet-name>
        <servlet-class>ThirdServlet</servlet-class>

        <init-param>
            <param-name>Name</param-name>
            <param-value>Rutik Dobariya</param-value>
        </init-param>

        <init-param>
```

```xml
        <param-name>Enrollment</param-name>
        <param-value>206120316057</param-value>
    </init-param>
</servlet>
<servlet-mapping>
    <servlet-name>thirdServlet</servlet-name>
    <url-pattern>/initparameter</url-pattern>
</servlet-mapping>

<servlet>
    <servlet-name>gradeServlet</servlet-name>
    <servlet-class>GradeServlet</servlet-class>
</servlet>
<servlet-mapping>
    <servlet-name>gradeServlet</servlet-name>
    <url-pattern>/grade</url-pattern>
</servlet-mapping>

<servlet>
    <servlet-name>showSubject</servlet-name>
    <servlet-class>ShowSubject</servlet-class>
</servlet>
<servlet-mapping>
    <servlet-name>showSubject</servlet-name>
    <url-pattern>/showSubject</url-pattern>
</servlet-mapping>

<servlet>
    <servlet-name>counterServlet</servlet-name>
    <servlet-class>CounterServlet</servlet-class>
    <init-param>
        <param-name>counter</param-name>
        <param-value>0</param-value>
    </init-param>

</servlet>
<servlet-mapping>
    <servlet-name>counterServlet</servlet-name>
    <url-pattern>/counterServlet</url-pattern>
</servlet-mapping>

<servlet>
    <servlet-name>checkUser</servlet-name>
    <servlet-class>CheckUser</servlet-class>
</servlet>
<servlet-mapping>
    <servlet-name>checkUser</servlet-name>
    <url-pattern>/checkUser</url-pattern>
</servlet-mapping>

<servlet>
    <servlet-name>afterLoginServlet</servlet-name>
    <servlet-class>AfterLoginServlet</servlet-class>
```

```
        </servlet>
        <servlet-mapping>
            <servlet-name>afterLoginServlet</servlet-name>
            <url-pattern>/afterLoginServlet</url-pattern>
        </servlet-mapping>

        <servlet>
            <servlet-name>cookieServlet</servlet-name>
            <servlet-class>CookieServlet</servlet-class>
        </servlet>
        <servlet-mapping>
            <servlet-name>cookieServlet</servlet-name>
            <url-pattern>/cookieServlet</url-pattern>
        </servlet-mapping>

        <servlet>
            <servlet-name>cookieServlet1</servlet-name>
            <servlet-class>CookieServlet1</servlet-class>
        </servlet>
        <servlet-mapping>
            <servlet-name>cookieServlet1</servlet-name>
            <url-pattern>/cookieServlet1</url-pattern>
        </servlet-mapping>
    </web-app>
```
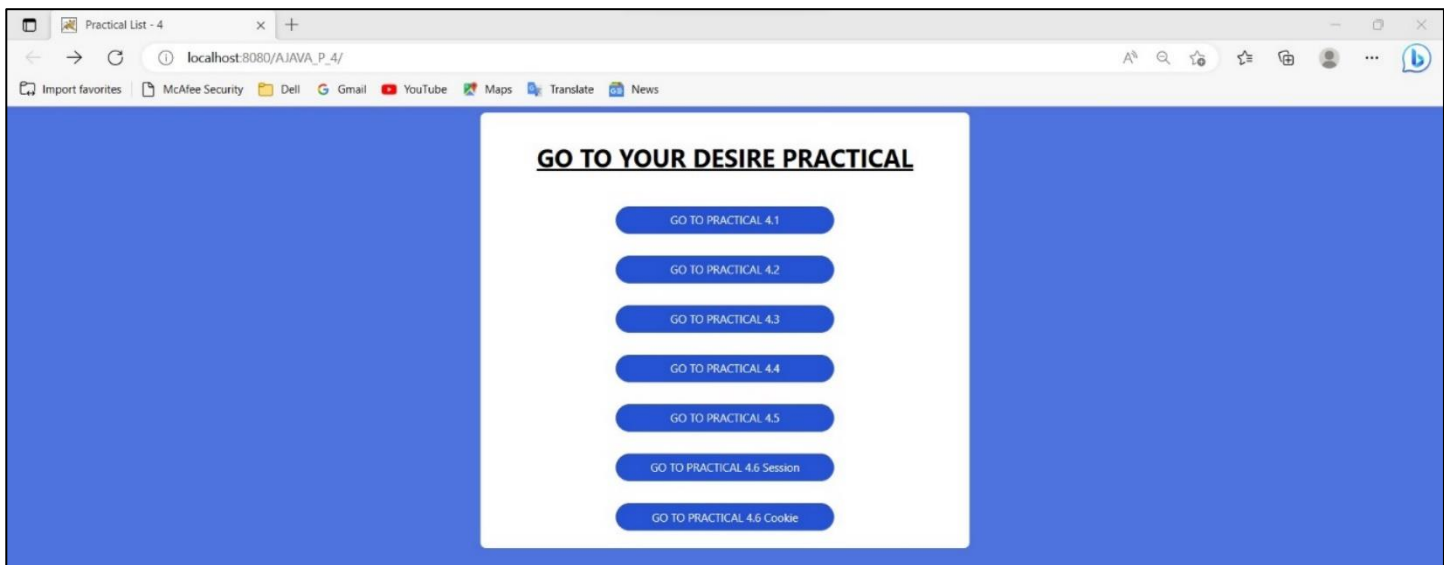
INDEX FILE

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PROGRAM – 4.1

Aim : Develop a program using RequestDispatcher and sendRedirect.

Program :

AJAVA_P_4-1.html FILE

```html
<!DOCTYPE html>
<html>
    <head>
        <title>Use of RequestDispatcher</title>
        <link rel="stylesheet" href="css/style.css" type="text/css"/>
    </head>
    <body>
        <div class="form">
            <form  action="add" method="POST">
                <h1 class="text-heading">Use OF RequestDispatcher</h1>
                <table cellspacing="0" cellpadding="8" align="center">
                    <tbody>
                        <tr>
                            <th><label class="text-lable">Enter Number 1
</label></th>
                            <td><input class="form-element" type="number"
name="num1" require></td>
                        </tr>
                        <tr>
                            <th><label class="text-lable">Enter Number 2
</label></th>
                            <td><input class="form-element" type="number"
name="num2" require></td>
                        </tr>
                        <tr align="center">
                            <td colspan="2"><input class="btn submit"
type="submit" value="SEND USING RequestDispatcher" name="submit"></td>
                        </tr>
                        <tr align="center">
                            <td colspan="2"><input class="btn submit"
type="submit" value="SEND USING sendRedirect" name="submit"></td>
                        </tr>
                    </tbody>
                </table>
            </form>
        </div>
    </body>
</html>
```

FirstServlet.java FILE

```java
import java.io.*;
import javax.servlet.*;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.*;

@WebServlet(urlPatterns = {"/FirstServlet"})
public class FirstServlet extends HttpServlet {
    protected void doPost(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
        int num1 = Integer.parseInt(request.getParameter("num1"));
```

```java
        int num2 = Integer.parseInt(request.getParameter("num2"));
        int sum = num1 + num2;
        String buttonType = request.getParameter("submit");

        if(buttonType.equals("SEND USING RequestDispatcher"))
        {
            request.setAttribute("num1",num1);
            request.setAttribute("num2",num2);
            request.setAttribute("sum",sum);
            request.setAttribute("buttonType",buttonType);

            RequestDispatcher rd = request.getRequestDispatcher("square");
            rd.forward(request,response);
        }
        else if(buttonType.equals("SEND USING sendRedirect"))
        {
            response.sendRedirect("square?num1=" + num1 + "&num2=" + num1 +
"&sum=" + sum + "&buttonType=" + buttonType);
        }
    }
}
```

SecondServlet.java FILE

```java
import java.io.*;
import javax.servlet.*;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.*;

@WebServlet(urlPatterns = {"/SecondServlet"})
public class SecondServlet extends HttpServlet {
    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
        int num1 = Integer.parseInt(request.getParameter("num1"));
        int num2 = Integer.parseInt(request.getParameter("num2"));
        int sum = Integer.parseInt(request.getParameter("sum"));
        String buttonType = request.getParameter("buttonType");

        PrintWriter out = response.getWriter();
        out.println("<html>");
            out.println("<head>");
                out.println("<title>Practical List - 4</title>");
                out.println("<link rel=\"stylesheet\" href=\"css/style.css\
"type=\"text/css\"/>");
            out.println("</head>");
            out.println("<body>");
                out.println("<div class=\"form\">");
                    out.println("<form  action=\"\" method=\"POST\">");
                            out.println("<h1  class=\"text-heading\">After
Addition  of  Two  numbers.<br>  That  number  with  their  sum  pass  to  This
Servlet For Square Using sendRedirect</h1>");
                                out.println("<table  cellspacing=\"0\"
cellpadding=\"10\" align=\"center\" border=1>");
                            out.println("<tbody>");
                                out.println("<tr>");
                                    out.println("<th><label class=\"text-
lable\">Number</label></th>");
```

```java
                                                out.println("<th><label class=\"text-lable\">Square</label></th>");
                        out.println("</tr><tr>");
                                out.println("<th><label class=\"text-lable\">Number 1 : "+ num1 + " * " + num1 +"</label></th>");
                                out.println("<td><label class=\"text-lable\">"+ (num1*num1) +"</label></td>");
                        out.println("</tr><tr>");
                                out.println("<th><label class=\"text-lable\">Number 2 : "+ num2 + " * " + num2 +"</label></th>");
                                out.println("<td><label class=\"text-lable\">"+ (num2*num2) +"</label></td>");
                        out.println("</tr><tr>");
                                out.println("<th><label class=\"text-lable\">Sum : "+ sum + " * " + sum +"</label></th>");
                                out.println("<td><label class=\"text-lable\">"+ (sum*sum) +"</label></td>");
                        out.println("</tr>");
                    out.println("</tbody>");
                out.println("</table>");
            out.println("</form>");
        out.println("</div>");
      out.println("</body>");
    out.println("</html>");
    }

    protected void doPost(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
        int num1 = (int)request.getAttribute("num1");
        int num2 = (int)request.getAttribute("num2");
        int sum = (int)request.getAttribute("sum");
        String buttonType = (String) request.getAttribute("buttonType");

        PrintWriter out = response.getWriter();
        out.println("<html>");
            out.println("<head>");
                out.println("<title>Practical List - 4</title>");
                out.println("<link rel=\"stylesheet\" href=\"css/style.css\" type=\"text/css\"/>");
            out.println("</head>");
            out.println("<body>");
                out.println("<div class=\"form\">");
                    out.println("<form  action=\"\" method=\"POST\">");
                            out.println("<h1  class=\"text-heading\">After Addition of Two numbers.<br> That number with their sum pass to This Servlet For Square Using RequestDispatcher</h1>");
                                out.println("<table  cellspacing=\"0\" cellpadding=\"10\" align=\"center\" border=1>");
                            out.println("<tbody>");
                                out.println("<tr>");
                                    out.println("<th><label class=\"text-lable\">Number</label></th>");
                                    out.println("<th><label class=\"text-lable\">Square</label></th>");
                                out.println("</tr><tr>");
                                    out.println("<th><label class=\"text-lable\">Number 1 : "+ num1 + " * " + num1 +"</label></th>");
```
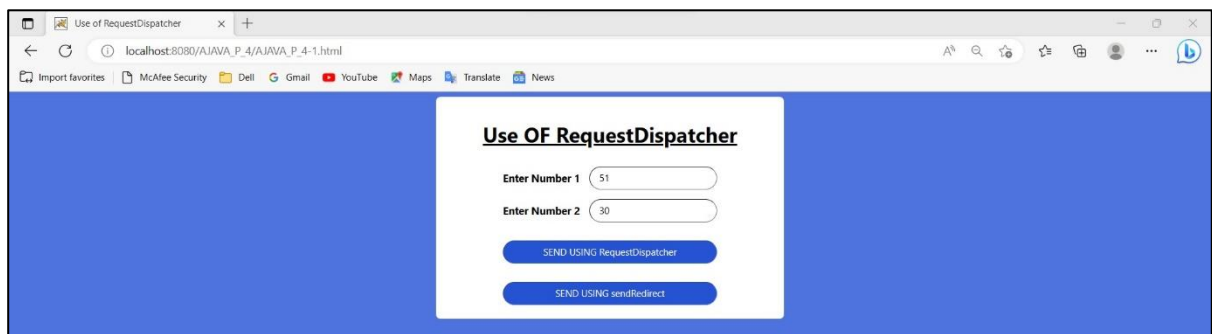
```
                                        out.println("<td><label class=\"text-
lable\">"+ (num1*num1) +"</label></td>");
                                        out.println("</tr><tr>");
                                        out.println("<th><label class=\"text-
lable\">Number 2 : "+ num2 + " * " + num2 +"</label></th>");
                                        out.println("<td><label class=\"text-
lable\">"+ (num2*num2) +"</label></td>");
                                        out.println("</tr><tr>");
                                        out.println("<th><label class=\"text-
lable\">Sum : "+ sum + " * " + sum +"</label></th>");
                                        out.println("<td><label class=\"text-
lable\">"+ (sum*sum) +"</label></td>");
                                        out.println("</tr>");
                                    out.println("</tbody>");
                            out.println("</table>");
                        out.println("</form>");
                    out.println("</body>");
                out.println("</html>");
        }
}
```

Output :

AFTER CLICK ONTO THE REQUESTDISPATCHER
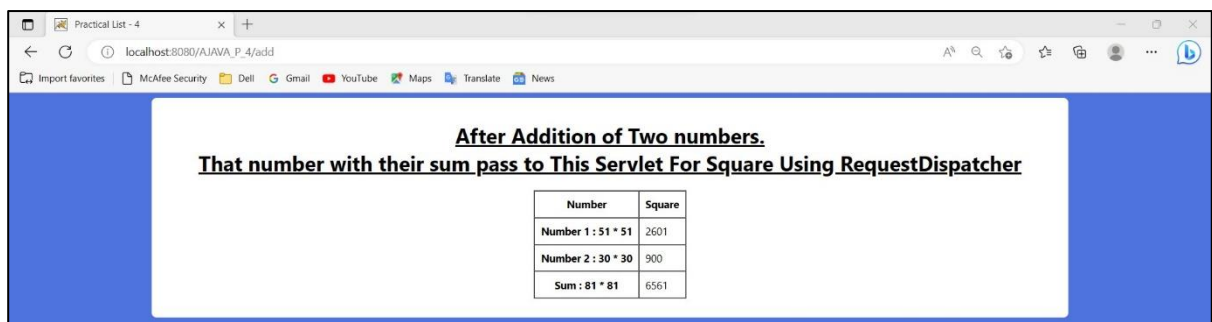
AFTER CLICK ONTO THE SENDREDIRECT
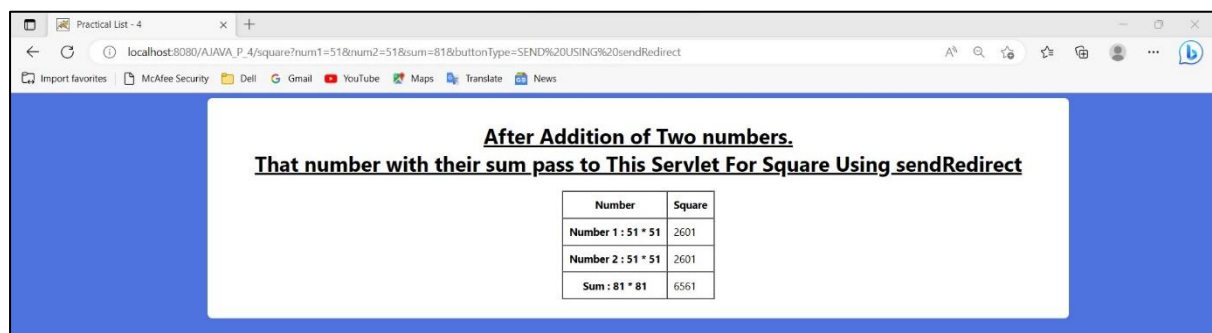
PROGRAM – 4.2

Aim : Write a simple program to get initialization parameters from web.xml using ServletConfig class.

Program :

ThirdServlet.java FILE

```java
import java.io.*;
import javax.servlet.*;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.*;

@WebServlet(urlPatterns = {"/ThirdServlet"})
public class ThirdServlet extends HttpServlet {
      protected void doPost(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();

        ServletConfig config=getServletConfig();
        String name=config.getInitParameter("Name");

        out.println("<html>");
            out.println("<head>");
                out.println("<title>Practical List - 4</title>");
                out.println("<meta charset=\"UTF-8\">");
                                    out.println("<meta    name=\"viewport\" content=\"width=device-width, initial-scale=1.0\">");
                                    out.println("<link   rel=\"stylesheet\" href=\"css/style.css\" type=\"text/css\"/>");
                                                out.println("<link href=\"https://fonts.googleapis.com/css2?family=Inter:wght@400;500;700&display=swap\" rel=\"stylesheet\" />");
            out.println("</head>");
            out.println("<body>");
                out.println("<div class=\"form\">");
                    out.println("<form  action=\"\" method=\"GET\">");
                                    out.println("<h1   class=\"text-heading\">Initialising Parameter from Web.Xml</h1>");
                                    out.println("<table  cellspacing=\"0\" cellpadding=\"10\" align=\"center\" border=1>");
                            out.println("<tbody>");
                                out.println("<tr>");
                                    out.println("<th><label class=\"text-lable\">Parameter Name</label></th>");
                                    out.println("<th><label class=\"text-lable\">Value</label></th>");
                                out.println("</tr>");
                                out.println("<tr>");
                                    out.println("<th><label class=\"text-lable\">Name</label></th>");
                                    out.println("<td><label class=\"text-lable\">"+ name +"</label></td>");
                                out.println("</tr>");
                            out.println("</tbody>");
```

```
                    out.println("</table>");
                out.println("</form>");
            out.println("</div>");
        out.println("</body>");
    out.println("</html>");

    out.close();
    }
}
```

Output :

INITIALIZING PARAMETER FROM WEB.XML FILE
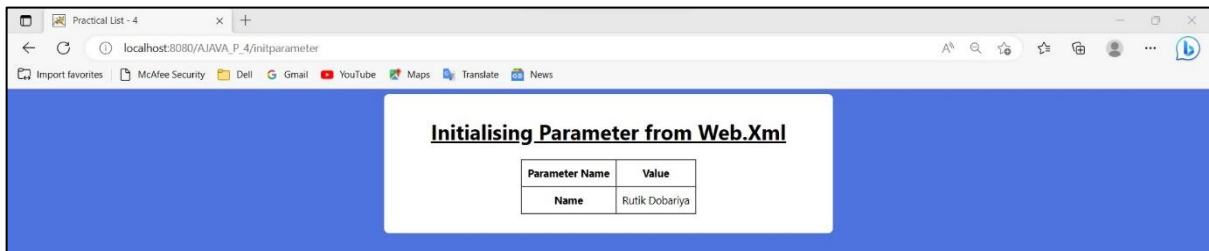
PROGRAM – 4.3

Aim : Develop a simple program to generate report card of diploma fifth sem students, using mysql database.

Program :

AJAVA_P_4-3.html FILE

```html
<!DOCTYPE html>
<html>
    <head>
        <title>Student Grade</title>
        <link rel="stylesheet" href="css/style.css" type="text/css"/>
    </head>
    <body>
        <div class="form">
            <form  action="grade" method="GET">
                <h1 class="text-heading">Student Grade</h1>
                <table cellspacing="0" cellpadding="8" align="center">
                    <tbody>
                        <tr>
                            <th><label class="text-lable">Student
name</label></th>
                            <td><input class="form-element" type="text"
name="name" require></td>
                        </tr><tr>
                            <th><label class="text-lable">Advance
JAVA</label></th>
                            <td><input class="form-element" type="number"
name="advJava" max="70" min="0" require></td>
                        </tr><tr>
                            <th><label class="text-
lable">Android</label></th>
                            <td><input class="form-element" type="number"
name="android" max="70" min="0" require></td>
                        </tr><tr>
                            <th><label class="text-lable">PHP</label></th>
                            <td><input class="form-element" type="number"
name="php" max="70" min="0" require></td>
                        </tr><tr>
                            <th><label class="text-lable">Web Network
Security</label></th>
                            <td><input class="form-element" type="number"
name="wns" max="70" min="0" require></td>
                        </tr><tr align="center">
                            <td colspan="2"><input class="btn submit"
type="submit" value="Generate Grade" name="submit"></td>
                        </tr>
                    </tbody>
                </table>
            </form>
        </body>
</html>
```

GradeServlet.java FILE

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


@WebServlet(urlPatterns = {"/GradeServlet"})
public class GradeServlet extends HttpServlet {
    Connection cn;
    PreparedStatement stmt;
    Statement stmtN;

    protected void processRequest(HttpServletRequest req, HttpServletRespon
se res) throws ServletException, IOException {
        res.setContentType("text/html;charset=UTF-8");
        int java = Integer.parseInt(req.getParameter("advJava"));
        int wns = Integer.parseInt(req.getParameter("wns"));
        int android = Integer.parseInt(req.getParameter("android"));
        int php = Integer.parseInt(req.getParameter("php"));
        int total = (java + android + php + wns);
        String name = req.getParameter("name");
        float percentage = (100 * total) / 280;
        String grade = "";
        if (percentage <= 100 || percentage >= 90) {
            grade = "A1";
        } else if (percentage <= 90 || percentage >= 80) {
            grade = "A2";
        } else if (percentage <= 80 || percentage >= 70) {
            grade = "B1";
        } else if (percentage <= 70 || percentage >= 60) {
            grade = "B2";
        } else if (percentage <= 60 || percentage >= 50) {
            grade = "C1";
        } else if (percentage <= 50 || percentage >= 40) {
            grade = "C2";
        } else if (percentage <= 40 || percentage >= 30) {
            grade = "DD";
        } else {
            grade = "Fail";
        }
        try (PrintWriter out = res.getWriter()) {
            Class.forName("com.mysql.cj.jdbc.Driver");
                                                        cn          =
DriverManager.getConnection("jdbc:mysql://localhost:3306/java_practice",
"root", "");
            stmtN = cn.createStatement();
            ResultSet rs = stmtN.executeQuery("select * from grade");
            out.println("<html>");
                out.println("<head>");
                out.println("<title>Practical List - 4</title>");
                out.println("<link rel=\"stylesheet\" href=\"css/style.css\
" type=\"text/css\"/>");
            out.println("</head>");
            out.println("<body>");
                out.println("<div class=\"form\">");
```

```
                          out.println("<form   action=\"\"  method=\"GET\">\n<h1
class=\"text-heading\">Student Greads</h1>"
                          + "        <table cellspacing=\"0\" cellpadding=\"10\"
align=\"center\" border=1>\n"
                          + "          <thead>\n"
                          + "            <tr>\n"
                          + "              <th><label class=\"text-lable\">Student
</th><th>JAVA</label></th>\n"
                          + "              <th><label class=\"text-lable\">Android
</label></th>\n"
                          + "              <th><label class=\"text-lable\">PHP</la
bel></th>\n"
                          + "              <th><label class=\"text-lable\">WNS</la
bel></th>\n"
                          + "              <th><label class=\"text-lable\">Total</
label></th>\n"
                          + "              <th><label class=\"text-lable\">Result<
/label></th>\n"
                          + "              <th><label class=\"text-lable\">Grade</
label></th>\n"
                          + "            <tr>  \n"
                          + "          </thead>\n"
                );
            while (rs.next()) {
                out.println(
                          "        <tbody>\n"
                          + "            <tr>\n"
                          + "<td>" + rs.getString(8) + "</td>\n"
                          + "            <td><label class=\"text-lable\">" +
rs.getInt(1) + "</label></td>\n"
                          + "            <td><label class=\"text-lable\">" +
rs.getInt(2) + "</label></td>\n"
                          + "            <td><label class=\"text-lable\">" +
rs.getInt(3) + "</label></td>\n"
                          + "            <td><label class=\"text-lable\">" +
rs.getInt(4) + "</label></td>\n"
                          + "            <td><label class=\"text-lable\">" +
rs.getInt(5) + "</label></td>\n"
                          + "            <td><label class=\"text-lable\">" +
rs.getFloat(6) + "%</label></td>\n"
                          + "            <td><label class=\"text-lable\">" +
rs.getString(7) + "</label></td>\n"
                          + "            </tr>\n");
            }
            out.println("        </tbody>\n"
                      + "        </table>\n");
            out.println("</body>");
            out.println("</html>");

        } catch (Exception e) {
            System.out.println(e);
        }
        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            cn = DriverManager.getConnection("jdbc:mysql://localhost:3306/j
ava_practice", "root", "");
```

```
        stmt = cn.prepareStatement("insert into grade values(?,?,?,?,?,
?,?,?)");
        stmt.setInt(1, java);
        stmt.setInt(2, android);
        stmt.setInt(3, php);
        stmt.setInt(4, wns);
        stmt.setInt(5, total);
        stmt.setFloat(6, percentage);
        stmt.setString(7, grade);
        stmt.setString(8, name);
        int rs = stmt.executeUpdate();
        PrintWriter out = res.getWriter();
        out.println("<h4 align='center' > Record added " + rs + "</h4>"
);
    } catch (Exception e) {
        System.out.println(e);
    }
  }
}
```

Output :

INSERT DATA INTO DATABSE

GRADE TABLE

java	android	php	wns	total	percentage	grade	name
20	20	20	0	60	21	A1	Rutik Dobariya
20	20	20	0	60	21	A1	Rutik Dobariya
60	63	56	62	241	86	A1	xyz
60	63	56	62	241	86	A1	xyz
65	67	69	62	263	93	A1	Rutik Dobariya
65	67	69	62	263	93	A1	Rutik Dobariya

RETRIEVE DATA FROM GRADE TABLE

PROGRAM – 4.4

Aim : Develop a simple program , when user select the subject code, name of the subject will be displayed using servlet and mysql database.

Program :

AJAVA_P_4-4.html FILE

```html
<!DOCTYPE html>
<html>
    <head>
        <title>Show Subject</title>
        <link rel="stylesheet" href="css/style.css" type="text/css"/>
    </head>
    <body>
        <div class="form">
            <form  action="showSubject" method="POST">
                <h1 class="text-heading">Show Subject</h1>
                <table cellspacing="0" cellpadding="8" align="center">
                    <tbody>
                        <tr>
                            <th><label class="text-lable">Enter Subject Code : </label></th>
                            <td><input class="form-element" type="number" name="code" require></td>
                        </tr>
                        <tr align="center">
                            <td colspan="2"><input class="btn submit" type="submit" value="Find Subject" name="submit"></td>
                        </tr>
                    </tbody>
                </table>
            </form>
        </div>
    </body>
</html>
```

ShowSubject.java FILE

```java
import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.http.*;
@WebServlet(urlPatterns = {"/ShowSubject"})
public class ShowSubject extends HttpServlet {
    Connection cn;
    Statement stmt;

    protected void doPost(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
        try (PrintWriter out = response.getWriter()) {
            response.setContentType("text/html;charset=UTF-8");
            Class.forName("com.mysql.cj.jdbc.Driver");
            cn = DriverManager.getConnection("jdbc:mysql://localhost:3306/java_practice", "root", "");
            stmt = cn.createStatement();
            int code = Integer.parseInt(request.getParameter("code"));
```

```
            ResultSet rs = stmt.executeQuery("select * from subject where
code=" + code);
            out.println("<html>");
                out.println("<head>");
                out.println("<title>Practical List - 4</title>");
                out.println("<link rel=\"stylesheet\" href=\"css/style.css\
" type=\"text/css\"/>");
            out.println("</head>");
            out.println("<body>");
                out.println("<div class=\"form\">");
                    out.println("<form   action=\"\"   method=\"GET\">\n<h1
class=\"text-heading\">Student Greads</h1>"
                    + "        <table cellspacing=\"0\" cellpadding=\"10\" al
ign=\"center\" border=1>\n"
                    + "            <thead>\n"
                    + "              <tr>\n"
                     + "                <th><label class=\"text-lable\">Subject
Code</label></th>\n"
                     + "                <th><label class=\"text-lable\">Subject
Name</label></th>\n"
                    + "              <tr>  \n"
                    + "            </thead>\n"
            );
            while (rs.next()) {
                out.println(
                        "          <tbody>\n"
                      + "            <tr>\n"
                       + "              <td><label class=\"text-lable\">" +
code + "</label></td>\n"
                       + "              <td><label class=\"text-lable\">" +
rs.getString(2) + "</label></td>\n"
                      + "            </tr>\n");
            }
            out.println(
                    "          </tbody>\n"
                  + "        </table>\n"
                  + "    </div>");

            out.println("</body>");
            out.println("</html>");
            while (rs.next()) {
                out.println("<h1>"
                        + "Subject Name : " + rs.getString(2) + "</h1>");
            }
        } catch (Exception ex) {
            System.out.println(ex);
        }
    }
}
```
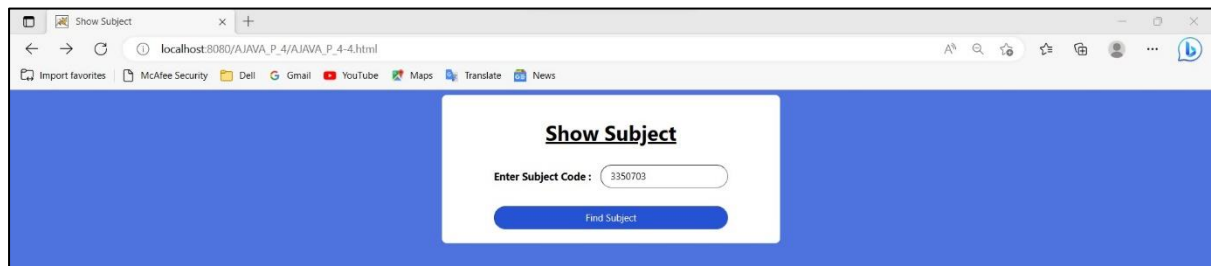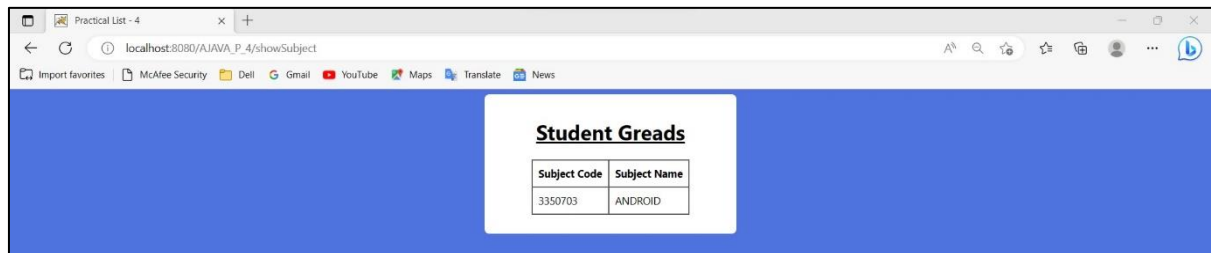
Output :

CHECK IN DATABASE

code	subject_name
3350701	AJAVA
3350701	WNS
3350702	PHP
3350703	ANDROID

ENTER SUBJECT CODE 3350703 THAT CHECK IN TABLE

SHOW SUBJECT NAME THAT HAVE SUBJECT CODE 3350703

PROGRAM – 4.5

Aim : Develop a simple servlet program which maintains a counter for the number of times it has been accessed since its loading, initialize the counter using deployment descriptor

Program :

CounterServlet.java FILE

```java
import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.http.*;
import javax.servlet.annotation.WebServlet;

@WebServlet(urlPatterns = {"/CounterServlet"})
public class CounterServlet extends HttpServlet {
    private static final long serialVersionUID = 1L;
    private int counter;
    public void init() throws ServletException {
        counter = Integer.parseInt(getServletConfig().getInitParameter("counter"));
    }

    protected void doPost(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        counter++;
        out.println("<html><head>");
                out.println("<title>Practical List - 4</title>");
                out.println("<link rel=\"stylesheet\" href=\"css/style.css\" type=\"text/css\"/>");
            out.println("</head><body><div class=\"form\">");
                out.println("<form  action=\"\" method=\"POST\">");
                out.println("<h1 class=\"text-heading\">The servlet loading time counter : " + counter + "</h1>");
                out.println("</form></div></body></html>");
    }
}
```

Output :

COUNTER WHEN I REFRESH PAGE EACH TIME
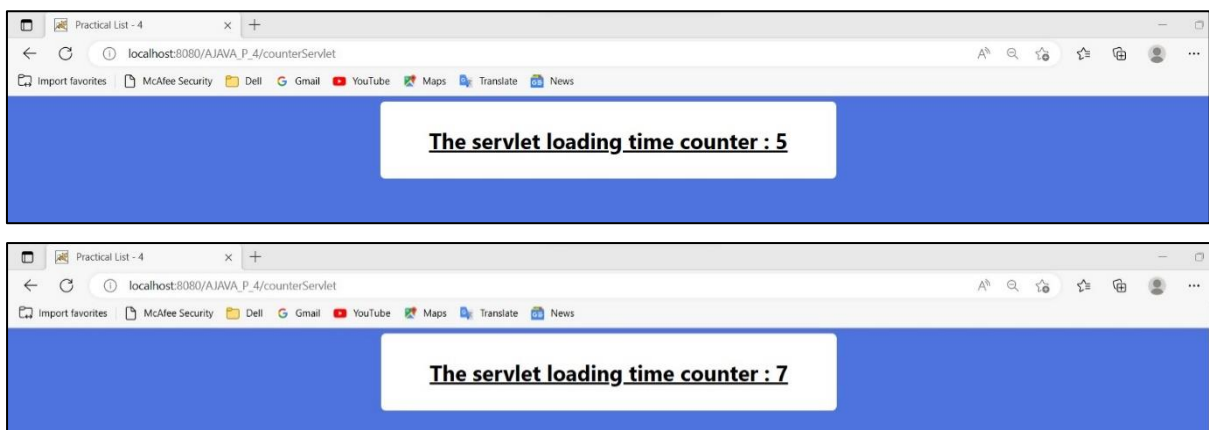
PROGRAM – 4.6

Aim : Create a web form which processes servlet and demonstrates use of cookies and sessions.

Program :

PROGRAM – 4.6 SESSION

AJAVA_P_4-6.html FILE

```html
<html>
    <head>
        <title>Use of Session</title>
        <link rel="stylesheet" href="css/style.css" type="text/css"/>
    </head>
    <body>
        <div class="form">
            <form  action="checkUser" method="POST">
                <h1 class="text-heading">Login Page</h1>
                <table cellspacing="0" cellpadding="8" align="center">
                    <tbody>
                        <tr>
                            <th><label class="text-lable">Enter Email</label></th>
                            <td><input class="form-element" type="email" name="email" require></td>
                        </tr>
                        <tr>
                            <th><label class="text-lable">Enter Password</label></th>
                            <td><input class="form-element" type="password" name="password" require></td>
                        </tr>
                        <tr align="center">
                            <td colspan="2"><input class="btn submit" type="submit" value="login" name="login"></td>
                        </tr>
                    </tbody>
                </table>
            </form>
        </div>
    </body>
</html>
```

CheckUser.java FILE

```java
import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.http.*;
import javax.servlet.annotation.WebServlet;

@WebServlet(urlPatterns = {"/CheckUser"})
public class CheckUser extends HttpServlet {

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

```java
        String email = request.getParameter("email");
        String password = request.getParameter("password");
        if(email.equals("rutik.rmd@gmail.com") && password.equals("rd2nd3md
2")){
            HttpSession session = request.getSession();
            session.setAttribute("email", email);
            response.sendRedirect("afterLoginServlet");
        }
        else {
            PrintWriter out = response.getWriter();
            out.println("<html><head>");
                out.println("<link rel=\"stylesheet\" href=\"css/style. Css
\" type=\"text/css\"/>");
                out.println("</head><body>");
                    out.println("<div class=\"form\">");
                            out.println("<form  action=\"AJAVA_P_4-6.html\"
method=\"POST\">");
                                out.println("<h1 class=\"text-heading\">Enter
Valid Email/Password</h1>");
                                    out.println("<table  cellspacing=\"0\"
cellpadding=\"10\" align=\"center\">");
                                    out.println("<tr align=\"center\">");
                                            out.println("<th
colspan=\"2\"><input class=\"btn submit\" type=\"submit\" value=\"GO Back
To Login Page\" name=\"login\"></th>");
                                    out.println("</tr>");
                        out.println("<table></form></div></body></html>");
        }
    }
}
```

AfterLofinServlet.java FILE

```java
import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.http.*;
import javax.servlet.annotation.WebServlet;

@WebServlet(urlPatterns = {"/AfterLoginServlet"})
public class AfterLoginServlet extends HttpServlet {

    protected void doGet(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
        HttpSession session = request.getSession();
        String email = (String) session.getAttribute("email");
        PrintWriter out = response.getWriter();
        out.println("<html><head>");
            out.println("<link  rel=\"stylesheet\"  href=\"css/style.css\"
type=\"text/css\"/>");
            out.println("</head><body><div class=\"form\">");
                out.println("<form  action=\"AJAVA_P_4-6.html\" method
=\"POST\">");
                        out.println("<h1 class=\"text-heading\">Welcome " +
email + "</h1>");
                                out.println("<table  cellspacing=\"0\"
cellpadding=\"10\" align=\"center\">");
                            out.println("<tbody>");
```

```
                                out.println("<tr align=\"center\">");
                                        out.println("<th colspan=\"2\"><input
class=\"btn   submit\"   type=\"submit\"   value=\"GO   Back   To   Login   Page\"
name=\"login\"></th></tr>");
                                out.println("<tbody></table></form></div></body></html>
");
    }
}
```
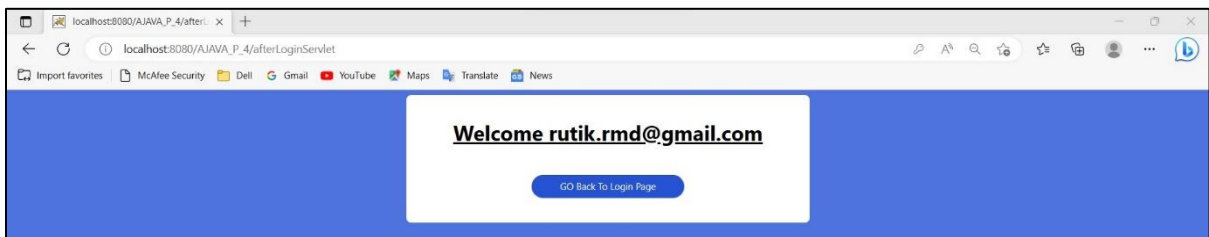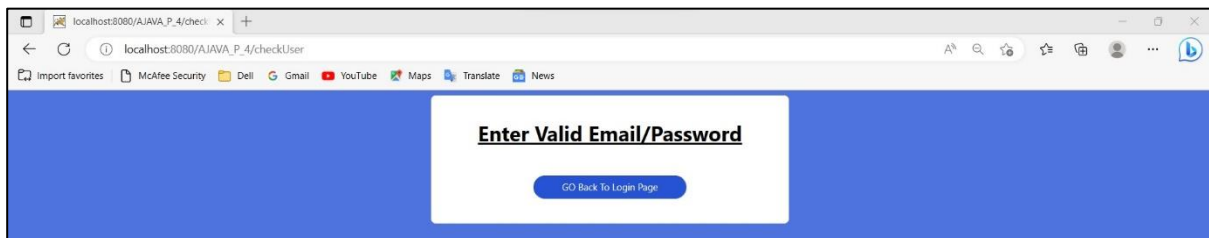
Output :

ENTER VALID EMAIL AND PASSWORD
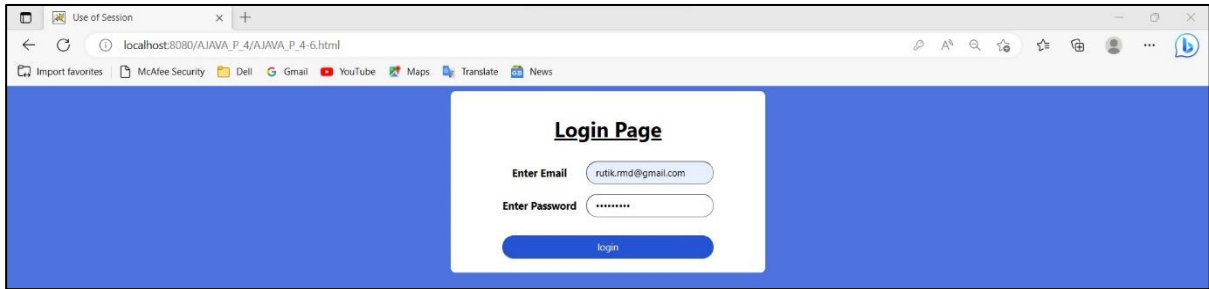
IF USER ENTER CORRECT EMAIL AND PASSWORD

IF USER ENTER INCORRECT EMAIL OR PASSWORD

PROGRAM – 4.6 COOKIE

AJAVA_P_4-6_COOKIE.html FILE

```html
<!DOCTYPE html>
<html>
    <head>
        <title>Use of Cookie</title>
        <link rel="stylesheet" href="css/style.css" type="text/css"/>
    </head>
    <body>
        <div class="form">
            <form  action="cookieServlet" method="POST">
                <h1 class="text-heading">Enter Cookie Values</h1>
                <table cellspacing="0" cellpadding="8" align="center">
                    <tbody>
                        <tr>
```

```
                                        <th><label class="text-lable">Enter Email</
label></th>
                                            <td><input class="form-element" type="text"
name="email" require></td>
                                    </tr>
                                    <tr>
                                        <th><label class="text-lable">Enter Enrollm
ent</label></th>
                                        <td><input class="form-element" type="text"
name="enrollment" require></td>
                                    </tr>
                                    <tr align="center">
                                            <td colspan="2"><input class="btn submit"
type="submit" value="Submit" name="Submit"></td>
                                    </tr>
                            </tbody>
                        </table>
                </form>
            </div>
        </body>
</html>
```

CookieServlet.java FILE

```java
import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.http.*;
import javax.servlet.annotation.WebServlet;

@WebServlet(urlPatterns = {"/CookieServlet"})
public class CookieServlet extends HttpServlet {

    @Override
     protected void doPost(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
        String email = request.getParameter("email");
        String enrollment = request.getParameter("enrollment");
        Cookie cookie = new Cookie("email",email);
        Cookie cookie1 = new Cookie("enrollment",enrollment);
        response.addCookie(cookie);
        response.addCookie(cookie1);
        response.sendRedirect("cookieServlet1");
    }
}
```

CookieServlet1.java FILE

```java
import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.http.*;
import javax.servlet.annotation.WebServlet;

@WebServlet(urlPatterns = {"/CookieServlet1"})
public class CookieServlet1 extends HttpServlet {
     protected void doGet(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
```

```
        Cookie cookies[] = request.getCookies();


        PrintWriter out = response.getWriter();
        out.println("<html><head>");
                out.println("<title>Practical List - 4</title>");
                out.println("<link rel=\"stylesheet\" href=\"css/style.css\
" type=\"text/css\"/>");
                out.println("</head><body><div class=\"form\">");
                    out.println("<form  action=\"\"  method=\"GET\">\n<h1
class=\"text-heading\">Cookie Name And Value</h1>"
                    + "        <table cellspacing=\"0\" cellpadding=\"10\"
align=\"center\" border=1>\n"
                    + "            <thead><tr>\n"
                     + "                <th><label class=\"text-lable\">Cookie
Name</label></th>\n"
                     + "                <th><label class=\"text-lable\">Cookie
Value</label></th>\n"
                    + "            <tr></thead>\n");
        for(Cookie c : cookies){
            out.println(
                    "            <tbody><tr>\n"
                     + "                <th><label class=\"text-lable\">" +
c.getName() + "</label></th>\n"
                        + "                <td align=\"center\"><label
class=\"text-lable\">" + c.getValue() + "</label></td></tr>\n");
            }
        out.println("            </tbody>\n"
                + "        </table>\n"
                + "    </div></body></html>");
    }
}
```

Output :

ENTER COOKIE VALUE

DISPLAY COOKIE NAME AND VALUE

Questions :

1. What is a Servlet.

➢ Java Servlets are programs that run on a Web or Application server and act as a middle layer between a requests coming from a Web browser or other HTTP client and databases or applications on the HTTP server.

➢ Using Servlets, you can collect input from users through web page forms, present records from a database or another source, and create web pages dynamically.

2. Difference Between GET And POST.

GET	POST
In case of Get request, only **limited amount of data** can be sent because data is sent in header.	In case of post request, **large amount of data** can be sent because data is sent in body.
Get request is not secured because data is exposed in URL bar.	Post request is secured because data is not exposed in URL bar.
Get request can be bookmarked.	Post request cannot be bookmarked.
Get request is idempotent . It means second request will be ignored until response of first request is delivered	Post request is non-idempotent.
Get request is more efficient and used more than Post.	Post request is less efficient and used less than get.

3. List out phases of Life Cycle.
➢ Servlet class is loaded.
➢ Servlet instance is created.
➢ init method is invoked.
➢ service method is invoked.
➢ destroy method is invoked.

4. Difference Between APPLET And SERVLET.

APPLET	SERVLET
A Java applet is a small application which is written in Java and delivered to users in the form of bytecode.	A servlet is a Java programming language class used to extend the capabilities of a server.
Applets are executed on client side.	Servlets are executed on server side.

Applets are used to provide interactive features to web applications that cannot be provided by HTML alone like capture mouse input etc.	Servlets are the Java counterpart to other dynamic Web content technologies such as PHP and ASP.NET.
Life cycle of Applets init(), stop(), paint(), start(), destroy().	Lifecycle of servlets are:- init( ), service( ), and destroy( ).
Packages available in Applets are :- import java.applet.*; and import java.awt.*.	Packages available in servlets are:- import javax.servlet.*; and import java.servlet.http.*;
Applets are two types 1.) Untrusted Applets 2.) trusted Applets	Servlet are two types 1.) Generic Servlet 2.) HTTP Servlet
Applets is a part of JSE(JAVA Stander Edition) Modules.	Servlet is a part of JEE(Java Enterprise Edition) Modules.