Practical – 4

4.1

Aim: Develop a program using RequestDispatcher and sendRedirect.

- **PROGRAM**

❖ **RequestDispatcher.java**

```
import java.io.IOException;
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 RequestDispatcher extends HttpServlet {

   @Override
   protected void doPost(HttpServletRequest req, HttpServletResponse resp) throws
ServletException, IOException {
      RequestDispatcher rd = req.getRequestDispatcher("VerifyUser");
      rd.forward(req, resp);
   }
}
```

❖ **VerifyUser.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 VerifyUser extends HttpServlet {

   @Override
   protected void doPost(HttpServletRequest req, HttpServletResponse resp) throws
ServletException, IOException {
      String name = req.getParameter("name");
      resp.setContentType("text/html");
      PrintWriter out = resp.getWriter();
      out.print("<h1><b>Redirected Successfully !!.<br>User is Verified!!</b></h1>");
   }
```

```
}
```

- **web.xml**

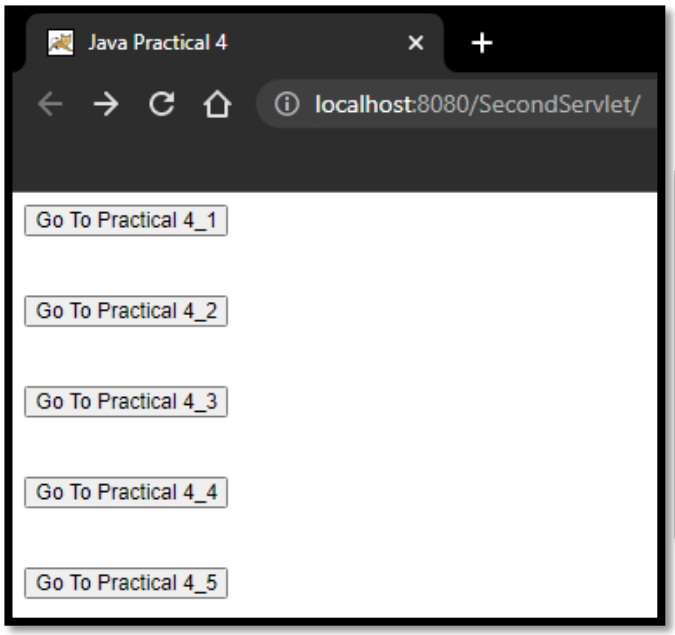
```
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="3.1" xmlns="http://xmlns.jcp.org/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
http://xmlns.jcp.org/xml/ns/javaee/web-app_3_1.xsd">
  <session-config>
    <session-timeout>
      30
    </session-timeout>
  </session-config>
  <servlet>
    <servlet-name>First Servelet</servlet-name>
    <servlet-class>ThirtyFour</servlet-class>
  </servlet>
  <servlet>
    <servlet-name>Verify Servelet</servlet-name>
    <servlet-class>VerifyUser</servlet-class>
  </servlet>
  <servlet-mapping>
    <servlet-name>First Servelet</servlet-name>
    <url-pattern>/FirstServlet</url-pattern>
  </servlet-mapping>
  <servlet-mapping>
    <servlet-name>Verify Servelet</servlet-name>
    <url-pattern>/VerifyUser</url-pattern>
  </servlet-mapping>
</web-app>
```

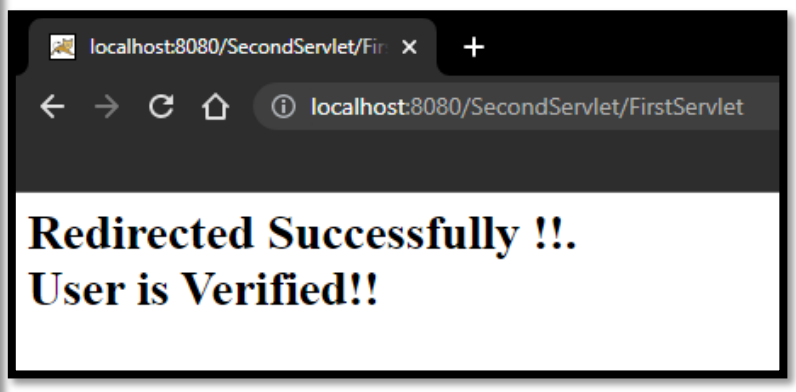
- **index.html**

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="ISO-8859-1">
    <title>Java Practical 4</title>
  </head>
   <form action="FirstServlet" method="post">
      <input type="submit" value="Go To Practical 4_1">
    </form><br><br>
    <form action="ThirtyFive" method="post">
      <input type="submit" value="Go To Practical 4_2">
    </form><br><br>
    <form action="gradeSheet.html" method="post">
      <input type="submit" value="Go To Practical 4_3">
```

```
            </form><br><br>
            <form action="showSubjects.html" method="post">
                <input type="submit" value="Go To Practical 4_4">
            </form><br><br>
            <form action="ThirtyEight" method="post">
                <input type="submit" value="Go To Practical 4_5">
            </form>
        </body>
    </html>
```

- OUTPUT





4.2

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

- **PROGRAM**

❖ **Parameter.java**

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

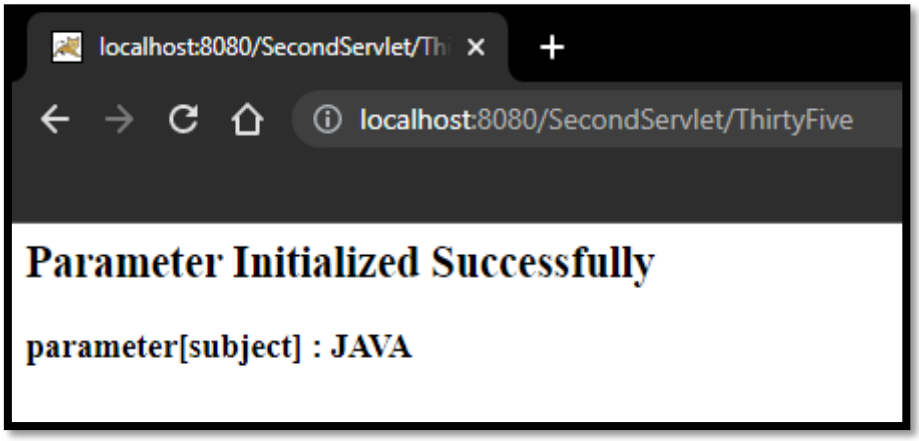
```
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

public class ThirtyFive extends HttpServlet {

   String paramSubject;

   @Override
   public void init(ServletConfig config) throws ServletException {
      super.init(config);
      paramSubject = getServletConfig().getInitParameter("subject");
   }

   @Override
   public void doPost(HttpServletRequest request, HttpServletResponse response)
         throws ServletException, IOException {
      response.setContentType("text/html");
      PrintWriter out = response.getWriter();
      out.println("<h2>Parameter Initialized Successfully</h2>");
      out.println("<h3>parameter[subject] : " + paramSubject + "</h3>");

   }
}
```

- **web.xml**

```
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="3.1" 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">
   <session-config>
      <session-timeout>
         30
      </session-timeout>
   </session-config>
<servlet-name>Params Servelet</servlet-name>
      <servlet-class> ThirtyFive </servlet-class>
      <init-param>
         <param-name>subject</param-name>
         <param-value>JAVA</param-value>
      </init-param>
   </servlet>
     <servlet-mapping>
      <servlet-name>Params Servelet</servlet-name>
      <url-pattern>/ThirtyFive</url-pattern>
   </servlet-mapping>
```

```
</web-app>
```

- OUTPUT



4.3

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

- **PROGRAM**

❖ **ReportCard.java**

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

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

   Connection cn;
   PreparedStatement stmt;
   Statement stmtN;
   protected void processRequest(HttpServletRequest req, HttpServletResponse 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_db",
"root", "");
           stmtN = cn.createStatement();
           ResultSet rs = stmtN.executeQuery("select * from grade");
           out.println("<!DOCTYPE html>");
           out.println("<html>");
           out.println("<head>");
           out.println("<title>Servlet ThirtySix</title>");
           out.println("</head>");
           out.println("<body>");
           out.println("<h1 align='center' >Results of students </h1>");
           out.println("<div class=\"container\">\n"
                 + "     <table cellspacing='0' align='center' border='1px' cellpadding='6px'
>\n"
                 + "       <thead>\n"
                 + "         <tr>\n"
                 + "           <th>Student</th><th>JAVA</th>\n"
                 + "           <th>Android</th>\n"
                 + "           <th>PHP</th>\n"
```

```
                + "          <th>WNS</th>\n"
                + "          <th>Total</th>\n"
                + "          <th>Result</th>\n"
                + "          <th>Grade</th>\n"
                + "        <tr>  \n"
                + "      </thead>\n"
            );
            while (rs.next()) {
               out.println(
                    "       <tbody>\n"
                    + "         <tr>\n"
                    + "<td>" + rs.getString(8) + "</td>\n"
                    + "          <td>" + rs.getInt(1) + "</td>\n"
                    + "          <td>" + rs.getInt(2) + "</td>\n"
                    + "          <td>" + rs.getInt(3) + "</td>\n"
                    + "          <td>" + rs.getInt(4) + "</td>\n"
                    + "          <td>" + rs.getInt(5) + "</td>\n"
                    + "          <td>" + rs.getFloat(6) + "%</td>\n"
                    + "          <td>" + rs.getString(7) + "</td>\n"
                    + "         </tr>\n");
            }
            out.println(
                  "       </tbody>\n"
                  + "     </table>\n"
                  + "   </div>");
            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/java_db",
"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);
        }
    }

    @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>

}
```

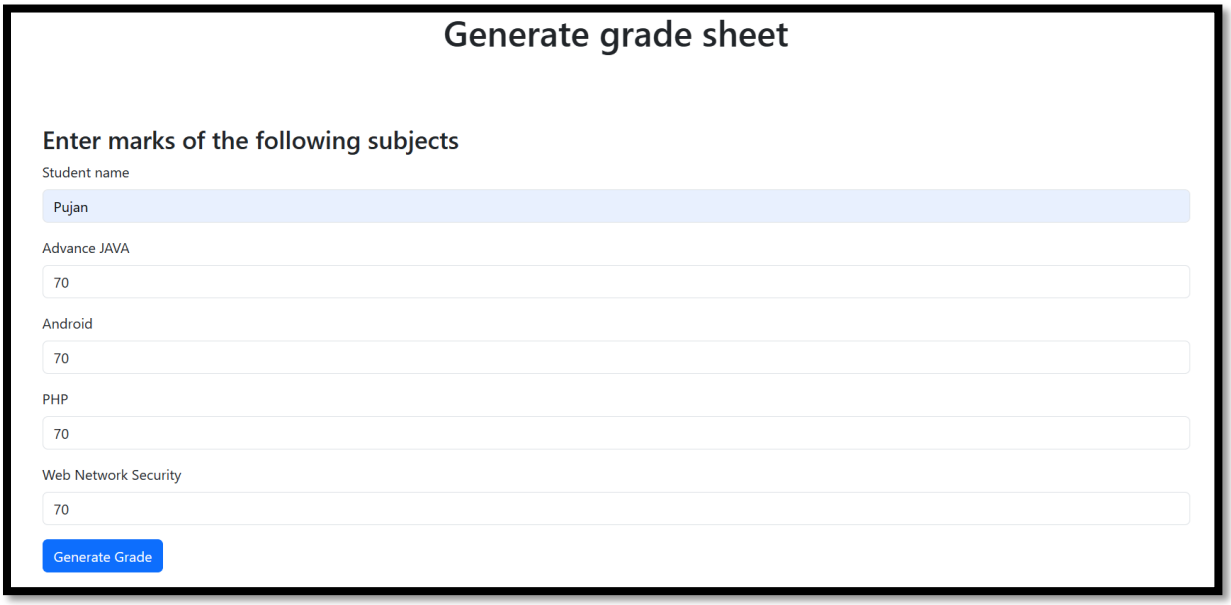
- **web.xml**

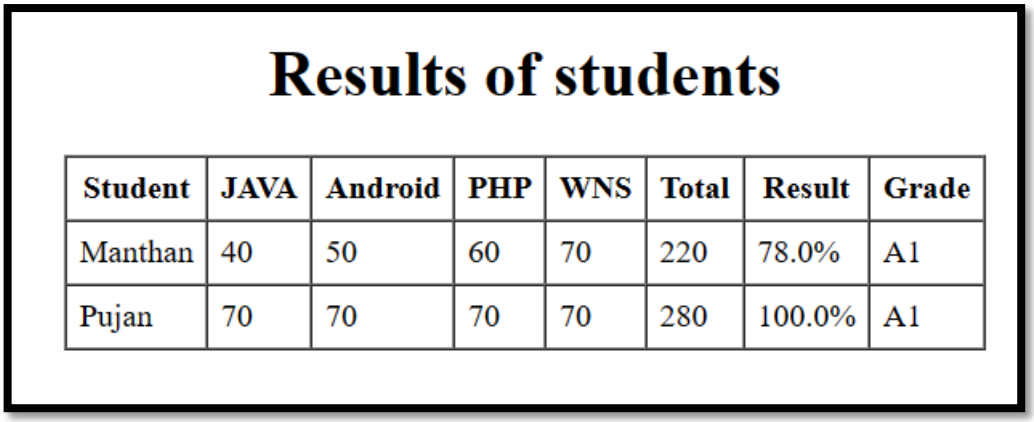
```
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="3.1" xmlns="http://xmlns.jcp.org/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
http://xmlns.jcp.org/xml/ns/javaee/web-app_3_1.xsd">
    <session-config>
        <session-timeout>
            30
        </session-timeout>
    </session-config>
    <servlet>
        <servlet-name>Report Card</servlet-name>
        <servlet-class>ReportCard</servlet-class>
    </servlet>
    <servlet-mapping>
        <servlet-name>Report Card</servlet-name>
        <url-pattern>ReportCard</url-pattern>
    </servlet-mapping>
</web-app>
```

- **gradesheet.html**

```
<!Doctype html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <title>Grade sheet</title>
  </head>
  <body>
    <h1 align="center">Generate grade sheet</h1>
      <h3>Enter marks of the following subjects</h3>
      <form action="ReportCar " >
            <label for="name" class="form-label">Student name</label>
            <input required  type="text" name="name" class="form-control" >
            <label for="exampleInputEmail1" class="form-label">Advance JAVA
</label>
            <input required max="70" min="0" type="number" name="advJava"
class="form-control" >
            <label for="exampleInputEmail1" class="form-label">Android</label>
            <input required max="70" min="0" type="number" name="android"
class="form-control">
            <label for="exampleInputEmail1" class="form-label">PHP</label>
            <input required max="70" min="0" type="number" name="php"
class="form-control">
            <label for="exampleInputEmail1" class="form-label">Web Network
Security</label>
            <input required max="70" min="0" type="number" name="wns"
class="form-control" id="exampleInputEmail1" aria-describedby="emailHelp">
          <button type="submit" class="btn btn-primary">Generate Grade</button>
      </form>
  </body>
</html>
```

- OUTPUT





Results of students

Student	JAVA	Android	PHP	WNS	Total	Result	Grade
Manthan	40	50	60	70	220	78.0%	A1
Pujan	70	70	70	70	280	100.0%	A1

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**

❖ **SubjectCode.java**

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

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

   Connection cn;
   Statement stmt;

   @Override
   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_db",
"root", "");
         stmt = cn.createStatement();
         int code = Integer.parseInt(request.getParameter("code"));
         ResultSet rs = stmt.executeQuery("select * from subject where code=" + code);
         while (rs.next()) {
            out.println("<h1>"
                  + "Subject Name : " + rs.getString(2) + "</h1>");
         }
      } catch (Exception ex) {
         System.out.println(ex);
      }
   }
}
```

- **web.xml**

```
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="3.1" 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">
   <session-config>
      <session-timeout>
         30
      </session-timeout>
   </session-config>
   <servlet>
      <servlet-name>Subject Code</servlet-name>
```

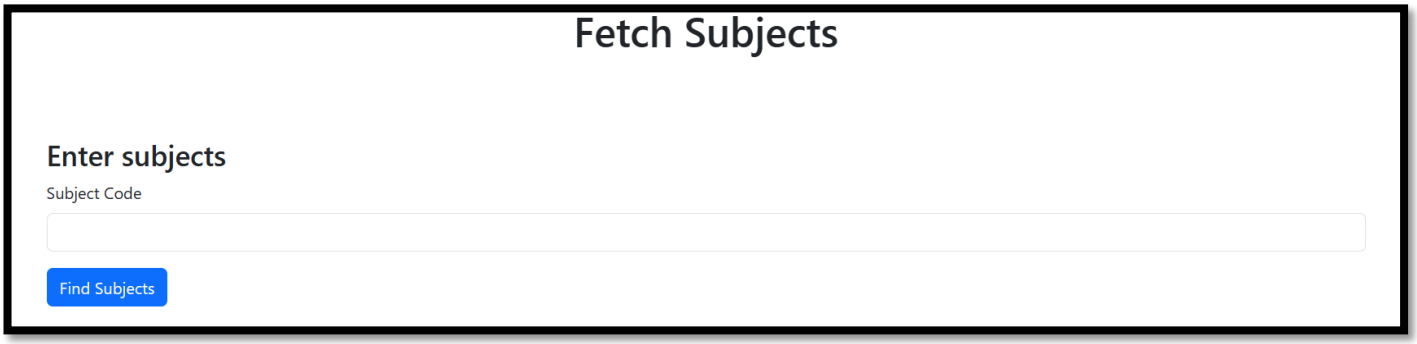
```
    <servlet-class>SubjectCode</servlet-class>
  </servlet>
  <servlet-mapping>
    <servlet-name>Subject Code</servlet-name>
    <url-pattern>SubjectCode</url-pattern>
  </servlet-mapping>
</web-app>
```

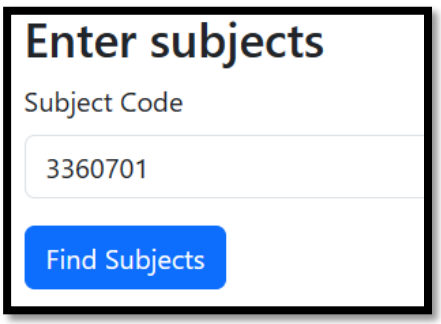
✓ index.html

```
<!Doctype html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <title>Show Subjects</title>
  </head>
  <body>
    <h1 align="center">Fetch Subjects</h1>
      <h3>Enter subjects</h3>
      <form action="SubjectCode" method="post">
          <label for="name" class="form-label">Subject Code</label>
          <input required  type="number" name="code" class="form-control" >
        <button type="submit" class="btn btn-primary">Find Subjects</button>
      </form>
  </body>
</html>
```

- OUTPUT

code	subject
3360701	Advance Java
3361601	WNS
3361602	Android
3361603	PHP
3361606	Project - 2





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**

❖ **Counter.java**

```
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletConfig;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

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

    public static int counter;
     @Override
  public void init(){
    counter = 0;
  }

    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 Counter</title>");
            out.println("</head>");
            out.println("<body>");
            out.println("<h1>View Counter: " + counter++ + "</h1>");
            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";
    }
}
```

- **fetchsubjects.html**

```
<!Doctype html>
<html lang="en">
    <head>
        <meta charset="utf-8">
        <meta name="viewport" content="width=device-width, initial-scale=1">
    </head>
    <body>
        <h1 align="center">Fetch Subjects</h1>
            <h3>Enter subjects</h3>
            <form action="Counter" method="post">
                <h1><u>4.5</u>  </h1>
                <input type="submit" value="Cookies And Session">
            </form>
    </body>
</html>
```

❖ **web.xml**

```
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="3.1" 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">
  <session-config>
    <session-timeout>
      30
    </session-timeout>
  </session-config>
  <servlet>
    <servlet-name>Counter</servlet-name>
    <servlet-class> Counter </servlet-class>
  </servlet>
  <servlet-mapping>
    <servlet-name> Counter </servlet-name>
    <url-pattern> Counter </url-pattern>
  </servlet-mapping>
</web-app>
```

- **OUTPUT**

4.6

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

- **PROGRAM**

❖ **Store.java**

```
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
```

```
import javax.servlet.http.Cookie;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;

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

   protected void processRequest(HttpServletRequest request, HttpServletResponse
response)
          throws ServletException, IOException {
       if (request.getParameter("submit") != null && request.getParameter("name") !=
null && request.getParameter("age") != null) {
          Cookie name = new Cookie("name", request.getParameter("name"));
          name.setMaxAge((60 * 60));
          response.addCookie(name);

          HttpSession httpSession = request.getSession(true);
          httpSession.setAttribute("age", request.getParameter("age"));

          response.setStatus(response.SC_MOVED_PERMANENTLY);
          response.setHeader("Location", "./Fetch");
       }
       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>Practical4_06</title>");
          out.println("<link rel=\"stylesheet\" href=\"./newcss.css\">");
          out.println("</head>");
          out.println("<body>");
          out.println("<form method=\"post\">");
          out.println("<label>Input name</label><br>");
          out.println("<input type=\"text\" name=\"name\" placeholder=\"Name\">");
          out.println("<br><br><label>Input age</label><br>");
          out.println("<input type=\"number\" name=\"age\" min=\"0\" max=\"100\"
placeholder=\"Age\"><br><br>");
          out.println("<button type=\"submit\" name=\"submit\"
value=\"submit\">Next</Button>");
          out.println("</form>");
          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";
    }
}
```

- **get.java**

```
import java.io.IOException;
import java.io.PrintWriter;
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 javax.servlet.http.HttpSession;

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

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

        String name = request.getCookies()[0].getValue();

        HttpSession httpSession = request.getSession(false);
        String age = httpSession.getAttribute("age").toString();

        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>Practical4_06_01</title>");
            out.println("<link rel=\"stylesheet\" href=\"./newcss.css\">");
```

```
            out.println("</head>");
            out.println("<body>");
            out.println("<h1>Name: " + name + "</h1>");
            out.println("<br><h1>Age: " + age + "</h1>");
            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";
    }
}
```

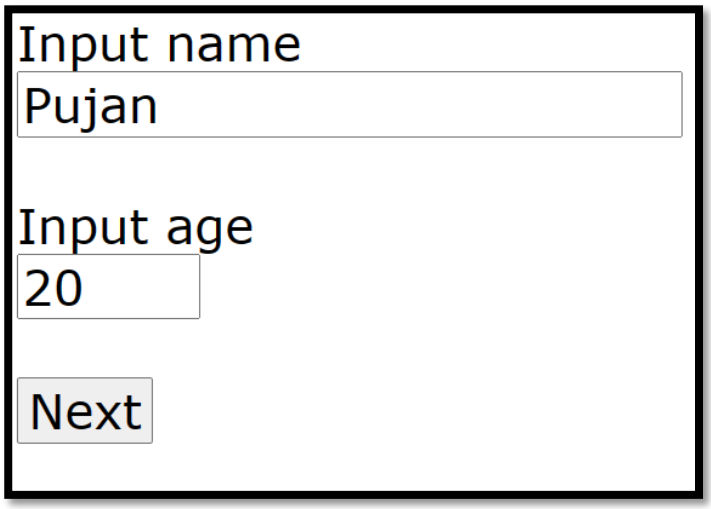
- **index.html**

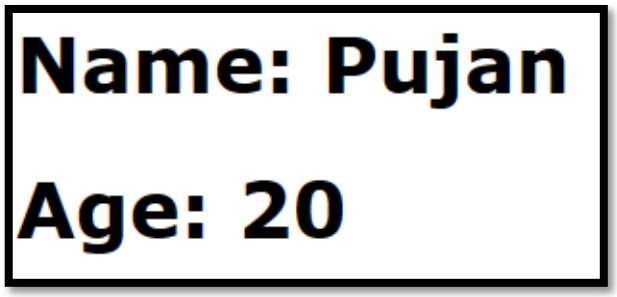
```
<!Doctype html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
  </head>
  <body>
    <h1 align="center">Fetch Subjects</h1>
      <h3>Enter subjects</h3>
      <form action="Store" method="post">
        <h1><u>4.6</u>  </h1>
        <input type="submit" value="Cookies And Session">
      </form>   </body>
</html>
```

- **web.xml**

```
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="3.1" 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">
  <session-config>
    <session-timeout>
      30
    </session-timeout>
  </session-config>
  <servlet>
    <servlet-name>Store</servlet-name>
    <servlet-class>Store</servlet-class>
  </servlet>
  <servlet>
    <servlet-name>Fetch</servlet-name>
    <servlet-class>Fetch</servlet-class>
  </servlet>

<servlet-mapping>
    <servlet-name> Store </servlet-name>
    <url-pattern> Store </url-pattern>
  </servlet-mapping>
   <servlet-mapping>
    <servlet-name> Fetch</servlet-name>
    <url-pattern> Fetch </url-pattern>
  </servlet-mapping>

</web-app>
```

- **OUTPUT**





❖ 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	Servlets are the Java counterpart to other dynamic Web content technologies such as PHP and

by HTML alone like capture mouse input etc.	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.