

❖ Common files:

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 Servlet</servlet-name>

        <servlet-class>ThirtyFour</servlet-class>

    </servlet>

    <servlet>

        <servlet-name>Verify Servlet</servlet-name>

        <servlet-class>VerifyUser</servlet-class>

    </servlet>

    <servlet>

        <servlet-name>Params Servlet</servlet-name>

        <servlet-class>ThirtyFive</servlet-class>

        <init-param>

            <param-name>name</param-name>

            <param-value>Arshil</param-value>

        </init-param>

    </servlet>

    <servlet>

        <servlet-name>Counter Servlet</servlet-name>

        <servlet-class>ThirtyEight</servlet-class>

        <init-param>

            <param-name>counter</param-name>

            <param-value>0</param-value>

        </init-param>
```

```
</servlet>

<servlet-mapping>

    <servlet-name>First Servlet</servlet-name>

    <url-pattern>/FirstServlet</url-pattern>

</servlet-mapping>

<servlet-mapping>

    <servlet-name>Verify Servlet</servlet-name>

    <url-pattern>/VerifyUser</url-pattern>

</servlet-mapping>

<servlet-mapping>

    <servlet-name>Params Servlet</servlet-name>

    <url-pattern>/ThirtyFive</url-pattern>

</servlet-mapping>

<servlet-mapping>

    <servlet-name>Counter Servlet</servlet-name>

    <url-pattern>/ThirtyEight</url-pattern>

</servlet-mapping>

</web-app>
```

Index.html

```
<html>

<head>

    <meta charset="ISO-8859-1">

    <title>Java Practical 4</title>

</head>

<body >

    <form action="FirstServlet" method="post">

        <h1>Thirty four </h1>

        <input type="submit" value="Redirect to verify user servlet">

    </form>

    <br>

    <form action="ThirtyFive" method="post">

        <h1>Thirty five</h1>

        <input type="submit" value="Initialize parameters">

    </form>
```

```
<br>
<form action="gradeSheet.html" method="post">
    <h1>Thirty six</h1>
    <input type="submit" value="Grade Sheet">
</form>
<form action="showSubjects.html" method="post">
    <h1>Thirty Seven</h1>
    <input type="submit" value="Fetch Subjects of sem 6 by subject code">
</form>
<form action="ThirtyEight" method="post">
    <h1>Thirty Eight</h1>
    <input type="submit" value="Counter program">
</form>
<form action="LoginForm.html" method="post">
    <h1>Thirty Nine</h1>
    <input type="submit" value="Cookies Sessions">
</form>
</body>
</html>
```

❖ [Output: index.html](#)

Thirty four

Redirect to verify user servlet

Thirty five

Initialize parameters

Thirty six

Grade Sheet

Thirty Seven

Fetch Subjects of sem 6 by subject code

Thirty Eight

Counter program

Thirty Nine

Cookies Sessions

❖ Practical – 4.1:

➤ **Aim:** Develop a program using RequestDispatcher and sendRedirect.

➤ **Program:**

```
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 ThirtyFour 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 {
    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>Welcome from verify user class</h1>");
    }
}
```

➤ Output:

Welcome from verify user class

❖ Practical – 4.2:

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

➤ Program:

```
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 paramName;
    @Override
    public void init(ServletConfig config) throws ServletException {
```

```
        super.init(config);
        paramName = getServletConfig().getInitParameter("name");
    }
    @Override
    public void doPost(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        out.println("<h2>My initialization parameter is: " + paramName + "</h2>");
    }
}
```

➤ Output:

My initialization parameter is: Arshil

❖ Practical – 4.3:

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

➤ Program:

```
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 = {"/ThirtySix"})
public class ThirtySix 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/test", "root", "");
        stmtN = cn.createStatement();
        ResultSet rs = stmtN.executeQuery("select * from grades");
        out.println("<h1 align='center' >Results of students </h1>");
        out.println("<div class=\"container\">\n"
```

```

>\n"
        + "        <table cellspacing='0' align='center' border='1px' cellpadding='6px'

        + "            <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");
    }
} catch (Exception e) {
    System.out.println(e);
}
try {
    Class.forName("com.mysql.cj.jdbc.Driver");
    cn = DriverManager.getConnection("jdbc:mysql://localhost:3306/test", "root", "");
    stmt = cn.prepareStatement("insert into grades 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);
}}
```

➤ **Output:**

Generate grade sheet

Enter marks of the following subjects

Student name

Arshil

Advance JAVA

60

Android

50

PHP

70

Web Network Security

50

Generate Grade

Results of students

Student	JAVA	Android	PHP	WNS	Total	Result	Grade
Arshil	60	50	70	50	230	82.0%	A1
Arshil	60	50	70	50	230	82.0%	A1
Arshil	70	70	70	70	280	100.0%	A1
Arshil	70	70	70	70	280	100.0%	A1
Arshil Hapani	70	70	70	70	280	100.0%	A1

java	android	php	wns	total	percentage	grade	Name
60	50	70	50	230	82	A1	Arshil
60	50	70	50	230	82	A1	Arshil
70	70	70	70	280	100	A1	Arshil
70	70	70	70	280	100	A1	Arshil
70	70	70	70	280	100	A1	Arshil Hapani
70	70	70	70	280	100	A1	Arshil Hapani

❖ Practical – 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:**

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

```

➤ **Output:**

Fetch Subjects

Enter subjects

Subject Code

Find Subjects

	code	subject
<input type="checkbox"/> Edit Copy Delete	3360701	Advance Java
<input type="checkbox"/> Edit Copy Delete	3361601	Web Network Security
<input type="checkbox"/> Edit Copy Delete	3361602	Android Applicatoin Development
<input type="checkbox"/> Edit Copy Delete	3361603	PHP

Subject Name : PHP

Subject Name : Advance Java

❖ **Practical – 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:**

```
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;

public class ThirtyEight 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>");
        out.println("<head>");
        out.println("<title>Counter Servlet</title>");
        out.println("</head>");
        out.println("<body>");
        out.println("<h1>The servlet loading time counter : " + counter + "</h1>");
        out.println("</body>");
        out.println("</html>");
    }
}
```

➤ Output:

The servlet loading time counter : 5

The servlet loading time counter : 7

❖ Practical – 4.6:

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

➤ Program:

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

```
@WebServlet("/LoginServlet")
public class ThirtyNine extends HttpServlet {
    protected void doPost(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        String username = request.getParameter("username");
        String password = request.getParameter("password");
        if (username.equals("Arshil") && password.equals("12345678")) {
            HttpSession session = request.getSession(true);
            session.setAttribute("username", username);
            Cookie cookie = new Cookie("username", username);
            response.addCookie(cookie);
            PrintWriter out = response.getWriter();
            out.println("<h1 style='color:green' > Welcome Arshil </h1>");
        } else {
            PrintWriter out = response.getWriter();
            out.println("<h1 style='color:red' > invalid user</h1>");
        }
    }
}
```

```
}  
}  
}
```

➤ Output:

Username:

Password:

invalid user

Username:

Password:

Welcome Arshil