

Experiment 22

1. Types of Servlets

a. Generic servlets

- i. Extend `javax.servlet.GenericServlet`.
- ii. Are protocol independent. They contain no inherent HTTP support or any other transport protocol.
- iii. The default port for the Apache Tomcat service is 8080. This port is defined for HTML traffic along with the more often used port 80.

b. HTTP servlets

- i. Extend `javax.servlet.HttpServlet`.
- ii. Have built-in HTTP protocol support and are more useful in a Sun Java System Web Server environment.
- iii. The GlassFish Server port number: The default is 8080. The administration server's port number: The default is 4848. An administration user name and password: The default user name is admin , and by default no password is required.

2. Difference Between `doGet()` and `doPost()`

a. `doGet()` :-

- i. Parameters are appended to the URL, and sent along with the header information. So it brings up a security issues (eg. Password).
- ii. We can send maximum size of data 240 bytes.
- iii. Parameters are not encrypted.
- iv. Processing is Faster
- v. Bookmark is possible

b. `doPost()` :-

- i. Parameters are sent through Request body.
- ii. We can send a large amount of data.
- iii. Parameters are encrypted.
- iv. Processing is Slower
- v. Bookmark is not possible.

3. Explain `ServletConfig` and `ServletContext`

a. `ServletConfig`

- i. ServletConfig is servlet specific
 - ii. Parameters of servletConfig are present as name-value pair in inside .
 - iii. ServletConfig object is obtained by getServletConfig() method
 - iv. Each servlet has got its own ServletConfig object
 - v. Use ServletConfig when only one servlet needs information shared by it.
- b. ServletContext
 - i. ServletContext is for whole application
 - ii. Parameters of servletContext are present as namevalue pair in which is outside of and inside
 - iii. ServletContext object is obtained by getServletContext() method.
 - iv. ServletContext object is only one and used by different servlets of the application.
 - v. Use ServletContext when whole application needs information shared by it.

4. ServletInputStream and ServletOutputStream

- a. ServletInputStream
 - i. The ServletInputStream class extends java.io.InputStream. It is implemented by the servlet container and provides an input stream, that a developer can use to read the data from a client request.
 - ii. Methods of ServletInputStream
 - 1. readline() : is used to read the input values.
- b. ServletOutputStream
 - i. ServletOutputStream is an abstract class in the javax.servlet package. It is used in servlets to write the response to the client.
 - ii. ServletOutputStream class extends java.io.OutputStream. It also defines the print() and println() methods, which output data to the stream.
 - iii. Methods of ServletOutputStream
 - 1. print(boolean) : Prints Boolean value(true/false).
 - 2. print(String) : Prints string values.
 - 3. print(char) : Prints a single character.

4. `print(float)` : Prints float value(uses 32 bits).
5. `print(double)` : Prints double value.
6. `print(int)` : Prints an integer type value.
7. `print(long)` : Prints long value.

X

1. GetLength.java

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

@WebServlet("/GetLength")
public class GetLength extends HttpServlet {
    private static final long serialVersionUID = 1L;

    public GetLength() {
        super();
    }

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

        String responseString[] = {
            "<link rel='stylesheet'
href='https://cdnjs.cloudflare.com/ajax/libs/materialize/1.0.0/css/materialize.min.css'>",
            "<script defer
src='https://cdnjs.cloudflare.com/ajax/libs/materialize/1.0.0/js/materialize.min.js'></script>
" };

        response.setContentType("text/html");
        PrintWriter pw = response.getWriter();
        String s = request.getParameter("username");
        for (String str : responseString) {
            pw.println(str);
        }
        pw.println("<div class='container'><h3>The Length of the Username is " +
s.length() + "</h3></div>");
        pw.close();

    }

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

}
```

index.html

```
<!DOCTYPE html><html><head><meta charset="ISO-8859-1" /><link rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/materialize/1.0.0/css/materialize.min.css" />
<script defer
src="https://cdnjs.cloudflare.com/ajax/libs/materialize/1.0.0/js/materialize.min.js"
></script> <title>Experiment
22</title></head><style>.container{padding:15px;width:100vw;height:100vh;display:flex;fle
x-direction:column;justify-content:center;align-items:center}.row{width:100%;margin:5px
0px 5px 0px}.col{display:flex;flex-direction:column;justify-content:center;align-
items:center}#username{width:50%;text-align:center}::placeholder{text-
align:center}input[type="submit"]{width:100%;color:white}.btn{width:50%}</style><body><
form action="GetLength" method="GET" class="container"><div class="row"><div class="col
s12"><h4>Enter Username</h4></div></div><div class="row"><div class="input-field col
s12"> <input id="username" name="username" type="text" class="validate"
placeholder="Username" /></div></div><div class="row"><div class="col s12"> <input
type="submit" class="waves-effect waves-light btn" value="Submit"
/></div></div></form></body></html>
```

Enter Username

Deon

SUBMIT

The Length of the Username is 4

2. AuthenticationServlet.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 AuthenticationServlet extends HttpServlet {
    protected void doPost(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();
        String pass = "abhishek12345";
        String username, password;
        username = request.getParameter("username");
        password = request.getParameter("password");
        if (username.equals("uname") && password.equals("pass")) {
            out.println("Login Successfull");
        } else {
            out.println("Login Unsuccessfull");
        }
    }
}
```

index.html

```
<html> <body>
<form action="AuthenticationServlet"
method="POST">
User Name:<input type="text" name="username"><br>
Password:<input type="password" name="password" ><br>
<input type="submit">
</form>
</body></html>
```

User Name: <input type="text" value="deon"/>	<input type="button" value="Submit"/>	<input type="button" value="Login Unsuccessfull"/>
Password: <input type="password" value="....."/>		

User Name: <input type="text" value="abhishek"/>	<input type="button" value="Submit"/>	<input type="button" value="Login Successfull"/>
Password: <input type="password" value="....."/>		

3. ReturnMarks.java

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.*;
@WebServlet("/ReturnMarks")
public class ReturnMarks extends HttpServlet {
    private static final long serialVersionUID = 1L;
    public ReturnMarks() {
        super();
    }
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter pw = response.getWriter();
        String name = request.getParameter("name");
        String department = request.getParameter("department");
        float percentage = Float.parseFloat(request.getParameter("percentage"));
        String year = request.getParameter("year");
        pw.println("<link rel='stylesheet'
href='https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css'
integrity='sha384-
TX8t27EcRE3e/ihU7zmQxVncDAy5uIKz4rEkgIXeMed4M0JlfiDPvG6uqKI2xXr2'
crossorigin='anonymous' /> <script defer src='https://code.jquery.com/jquery-
3.5.1.slim.min.js' integrity='sha384-
DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew+OrCXaRkfj'
crossorigin='anonymous' ></script> <script defer
src='https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js'
integrity='sha384-
ho+j7jyWK8fNQe+A12Hb8AhRq26LrZ/JpcUGGOn+Y7RsweNrtN/tE3MoK7ZeZDyx'
crossorigin='anonymous' ></script>
<style>.main{width:100vw;height:100vh;display:flex;justify-content:center;align-
items:center}.card{text-align:center}.row{margin-bottom:5px;margin-top:5px}</style><div
class='container main'><div class='card' style='width: 500px'><div class='card-header'><h4>"
+ name + "</h4></div><div class='card-body'><ul class='list-group list-group-flush'></ul><li
class='list-group-item'><div class='row'><div class='col-6'>Department</div><div class='col-
6'>"+ department + "</div></div></li><li class='list-group-item'><div class='row'><div
class='col-6'>Year</div><div class='col-6'>"+ year + "</div></div></li><li class='list-group-
item'><div class='row'><div class='col-6'>Percentage</div><div class='col-6'>"+ percentage
+"</div></div></li><li class='list-group-item'><div class='row'><div class='col-
6'>Status</div><div class='col-6'>"+ (percentage > 35 ? "Passed" : "Failed") +
"</div></div></li></ul></div></div>");
        pw.close();
    }
    protected void doPost(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
        doGet(request, response);
    }
}
```

index.html

```
<!DOCTYPE html><html><head><meta charset="ISO-8859-1" /><link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css"
integrity="sha384-
TX8t27EcRE3e/ihU7zmQxVncDAy5uIKz4rEkgIXeMed4M0JlfIDPvg6uqKI2xXr2"
crossorigin="anonymous" /> <script defer src="https://code.jquery.com/jquery-
3.5.1.slim.min.js" integrity="sha384-
Dfxdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew+OrCXaRkfj"
crossorigin="anonymous" ></script> <script defer
src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"
integrity="sha384-
ho+j7jyWK8fNQe+A12Hb8AhRq26LrZ/JpcUGGOn+Y7RsweNrtN/tE3MoK7ZeZDyx"
crossorigin="anonymous" ></script> <title>Experiment
22</title></head><style>.container{padding:15px;width:100vw;height:100vh;display:flex;fle
x-direction:column;justify-content:center;align-items:center}.form-
group{width:100%}.check{display:flex;flex-direction:row;justify-content:center;align-
items:center}</style><body><form action="ReturnMarks" method="GET"
class="container"><div class="form-group"> <label for="name">Name</label> <input
type="text" class="form-control" id="name" placeholder="Enter Name" name="name"
/></div><div class="form-group"> <label for="percentage">Percentage</label> <input
type="text" class="form-control" id="percentage" placeholder="Enter Percentage"
name="percentage" /></div><div class="form-group"> <label
for="department">Department</label> <select class="form-control" id="department"
name="department"><option value="Information Technology">Information
Technology</option><option value="Computer Engineering">Computer
Engineering</option><option value="Civil Engineering">Civil Engineering</option><option
value="Mechanical Engineering">Mechanical Engineering</option> </select></div><div
class="form-group check"><div class="form-check form-check-inline"> <input class="form-
check-input" type="radio" name="year" id="FY" value="First Year" checked /> <label
class="form-check-label" for="FY"> FY </label></div><div class="form-check form-check-
inline"> <input class="form-check-input" type="radio" name="year" id="SY" value="Second
Year" /> <label class="form-check-label" for="SY"> SY </label></div><div class="form-check
form-check-inline"> <input class="form-check-input" type="radio" name="year" id="TY"
value="Third Year" /> <label class="form-check-label" for="TY"> TY </label></div></div><div
class="form-group"> <button type="submit" class="btn btn-primary btn-
block">Submit</button></div></form></body></html>
```


Name

Deon Gracias

Percentage

80

Department

Information Technology



☒ FY ☐ SY ☐ TY

Submit

Deon Gracias

Department

Information Technology

Year

First Year

Percentage

80.0

Status

Passed