

CSE1007

JAVA PROGRAMMING

LAB ASSIGNMENT-6

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QUESTION :

Write a program(s) in Java that illustrates the following concepts. The concepts can be applied to any practical scenario such as student administration system or software which maintains various information about students and provides various services to the users. The other scenarios may include retail business management software, banking systems, railway reservation system, online shopping applications, environmental monitoring system etc.

- Development and deployment of servlets
- Request and Response handling
- Session tracking
- JSP (Tags and expression, expression language and custom tag)

SOLUTION:

PROGRAM 1:

In a banking system, we see that authentication is very crucial. Hence, write a servlet application to validate the username and password from the database and display all the details of that particular employee from the database.

Concepts used:

- Development and deployment of servlets

- Request and Response handling
- JDBC

Code:

index.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Yogeswari Sahu 18BCE0928 </title>
</head>
<body>
<h2>Yogeswari Sahu 18BCE0928 24-06-2021</h2>
<form action="validate" method="post">
<label for="username">Enter your Username</label>
<input type="text" name="username" required><br><br>
<label for="pass">Enter your Password</label>
<input type="password" name="pass" required><br>
<input type="submit" name="Submit" value="submit">
<input type="reset">
</form>
</body>
</html>
```

LoginServlet.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;
import java.sql.*;

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

    /**
     * Default constructor.
     */
}
```

```

    */
    public LoginServlet() {
        // TODO Auto-generated constructor stub
    }

    /**
     * @see Servlet#init(ServletConfig)
     */
    public void init(ServletConfig config) throws ServletException {
        // TODO Auto-generated method stub
    }

    /**
     * @see HttpServlet#service(HttpServletRequest request,
    HttpServletResponse response)
     */
    protected void service(HttpServletRequest request, HttpServletResponse
    response) throws ServletException, IOException {
        String method=request.getMethod();
        if(method.equals("GET")) {
            doGet(request,response);
        }else if(method.equals("POST")) {
            doPost(request,response);
        }
    }

    /**
     * @see HttpServlet#doGet(HttpServletRequest request,
    HttpServletResponse response)
     */
    protected void doGet(HttpServletRequest request, HttpServletResponse
    response) throws ServletException, IOException {
        // TODO Auto-generated method stub
        response.getWriter().append("Served at:
    ").append(request.getContextPath());
    }

    /**
     * @see HttpServlet#doPost(HttpServletRequest request,
    HttpServletResponse response)
     */
    protected void doPost(HttpServletRequest request, HttpServletResponse
    response) throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out=response.getWriter();
        String username = request.getParameter("username");
        String password = request.getParameter("pass");
        try {

```

```

        employee emp=new employee(username,password);
        boolean result=emp.validateEmployee();
        if(result) {
            out.println("Yogeswari Sahu 18BCE0928 24-06-2021");
            out.println("Welcome "+username);
            emp.displaydetails(out);

        }else {
            out.println("Yogeswari Sahu 18BCE0928 24-06-2021");
            out.println("");
            out.println("Wrong Username or Password, Please try
again!");
        }
    } catch (SQLException e) {
        e.printStackTrace();
    }
}

}

class employee{
    private String username;
    private String password;
    public employee(String username, String password) {
        this.username = username;
        this.password = password;
    }

    public boolean validateEmployee() throws SQLException {
        dbmsConnection connect=null;
        PreparedStatement stmt=null;
        Connection con=null;
        boolean found=false;
        try {
            connect= new
dbmsConnection("jdbc:mysql://localhost:3306/db","root","root");
            con=connect.getConnection();
            stmt=con.prepareStatement("select * from employees where
username =? and password=?");
            // set the values
            stmt.setString(1, username);
            stmt.setString(2, password);
            ResultSet rs = stmt.executeQuery();
            if(rs.next()==false) {
                found=false;
            }else{
                found=true;
            }
        }
    }
}

```

```

    }catch(Exception e) {
        System.out.println(e.getMessage());
    }finally {
        connect.closeConnection(stmt, con);
    }
    return found;
}

public void displaydetails(PrintWriter out) throws SQLException {
    dbmsConnection connect=null;
    PreparedStatement stmt=null;
    Connection con=null;
    try {
        connect= new
dbmsConnection("jdbc:mysql://localhost:3306/db","root","root");
        con=connect.getConnection();
        stmt=con.prepareStatement("select * from employees where
username =?");
        // set the values
        stmt.setString(1, username);
        //stmt.setString(2, password);
        ResultSet rs = stmt.executeQuery();

        String title = "Employee Information";

        String docType = "<!doctype html public \"-//w3c//dtd html
4.0 \" + \"transitional//en\">\n";

        out.println(docType + "<html>\n" + "<head><title>" + title +
"</title></head>\n" + "<body bgcolor = \"#f0f0f0\">\n" +
        "<h1 align = \"center\">" + title + "</h1>\n");
        out.println("<table border=1 >");
        out.println("<tr style='background-color:#ffffb3;
color:red'>");
        out.println("<th>Username</th>");
        out.println("<th>Emp Id</th>");
        out.println("<th>Age(Year)</th>");
        out.println("<th>First Name</th>");
        out.println("<th>Last Name</th>");
        out.println("<th>Department</th>");
        out.println("<th>Email ID</th>");
        out.println("<th>Phone number</th>");
        out.println("</tr>");

        if(rs.next()) {
            out.println("<tr style='background-color:#b3ffd9;'>");
            out.println("<td>" + rs.getString("username") + "</td>");

```

```

        out.println("<td>" + rs.getInt("empid") + "</td>");
        out.println("<td>" + rs.getInt("age") + "</td>");
        out.println("<td>" + rs.getString("fname") + "</td>");
        out.println("<td>" + rs.getString("lname") + "</td>");
        out.println("<td>" + rs.getString("department") + "</td>");
        out.println("<td>" + rs.getString("emailid") + "</td>");
        out.println("<td>" + rs.getString("phoneno") + "</td>");
        out.println("</tr>");
    }
    out.println("</table>");
    out.println("</body></html>");
    rs.close();
} catch (Exception e) {
    System.out.println(e.getMessage());
} finally {
    connect.closeConnection(stmt, con);
}
}

}

class dbmsConnection{
    String url;
    String username;
    String password;
    public dbmsConnection(String url, String username, String password) {
        this.url = url;
        this.username = username;
        this.password = password;
    }

    public Connection getConnection() {
        Connection con=null;
        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            con=DriverManager.getConnection(url,username,password);
            System.out.println("Connection established");

        } catch (Exception e) {
            System.out.println(e.getMessage());
        }
        return con;
    }

    public void closeConnection(Statement stmt, Connection con) throws
SQLException {
        stmt.close();
        con.close();
    }
}

```

}

web.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<web-app xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://java.sun.com/xml/ns/javaee"
xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
http://java.sun.com/xml/ns/javaee/web-app_3_0.xsd" id="WebApp_ID"
version="3.0">
  <display-name>ServletApplication</display-name>
  <welcome-file-list>
    <welcome-file>index.html</welcome-file>
    <welcome-file>index.htm</welcome-file>
    <welcome-file>index.jsp</welcome-file>
    <welcome-file>default.html</welcome-file>
    <welcome-file>default.htm</welcome-file>
    <welcome-file>default.jsp</welcome-file>
  </welcome-file-list>
  <servlet>
    <servlet-name>validate</servlet-name>
    <servlet-class>LoginServlet</servlet-class>
  </servlet>
  <servlet-mapping>
    <servlet-name>validate</servlet-name>
    <url-pattern>/validate</url-pattern>
  </servlet-mapping>

</web-app>
```

Output:

```
Administrator: Command Prompt - mysql -u root -p
mysql> use db;
Database changed
mysql> create table employees(username varchar(25),empid int,age int,fname varchar(20), lname varchar(20),department varchar(
25), emailid varchar(30),phoneno varchar(15),password varchar(15));
Query OK, 0 rows affected (0.90 sec)

mysql> insert into employees values("raj",12543,26,"Raj","Malhotra","Regulatory","rajm@gmail.com","9812323656","java");
Query OK, 1 row affected (0.62 sec)

mysql> insert into employees values("yogeswari_sahu",10928,21,"Yogeswari","Sahu","IT","yogeswari.s@vitstudent.ac.in","9597682
626","abcd123");
Query OK, 1 row affected (0.10 sec)

mysql> select * from employees;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| username | empid | age | fname | lname | department | emailid | phoneno | password |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| raj | 12543 | 26 | Raj | Malhotra | Regulatory | rajm@gmail.com | 9812323656 | java |
| yogeswari_sahu | 10928 | 21 | Yogeswari | Sahu | IT | yogeswari.s@vitstudent.ac.in | 9597682626 | abcd123 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql>
```

Yogeswari Sahu 18BCE0928

+

← → ↻

localhost:8080/ServletApplication/

Yogeswari Sahu 18BCE0928 24-06-2021

Enter your Username

Enter your Password

Yogeswari Sahu 18BCE0928

+

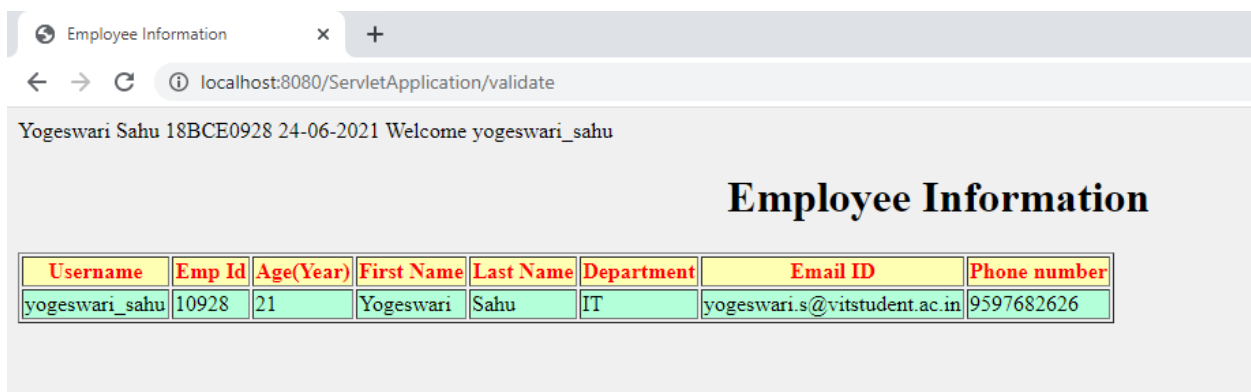
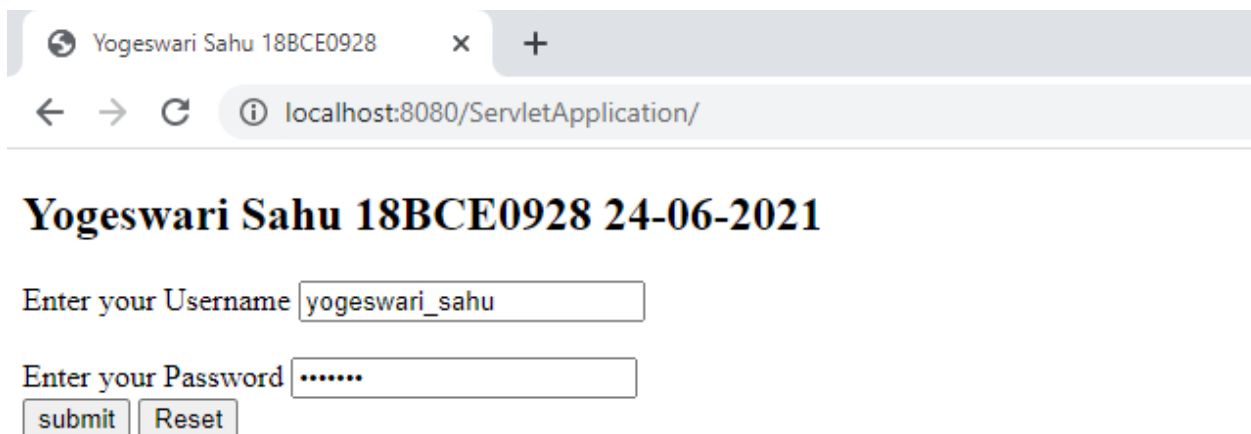
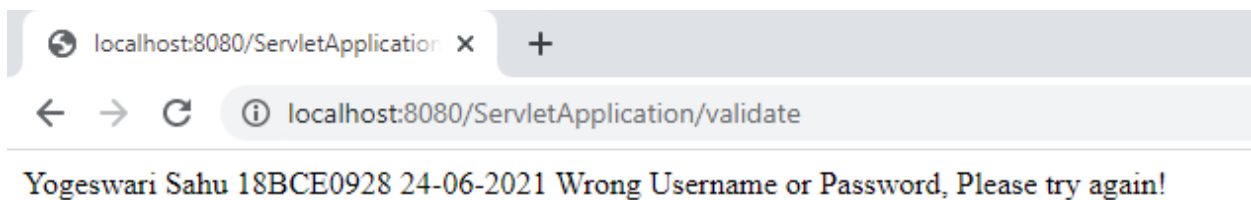
← → ↻

localhost:8080/ServletApplication/

Yogeswari Sahu 18BCE0928 24-06-2021

Enter your Username

Enter your Password



PROGRAM 2:

Demonstrate session tracking and display session information for that particular user using JSP.

Concepts used:

- Request and Response handling
- Session tracking
- JSP (Tags and expression, expression language and custom tag)

Code:

session.jsp

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
import="java.io.*,java.util.*" pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<%
    // Get session creation time.
    Date createTime = new Date(session.getCreationTime());
    // Get last access time of this web page.
    Date lastAccessTime = new Date(session.getLastAccessedTime());

    String title = "Welcome Back to my website";
    Integer visitCount = new Integer(0);
    String visitCountKey = new String("visitCount");
    String userIDKey = new String("userID");
    String userID = new String("Yogeswari Sahu");

    // Check if this is new comer on your web page.
    if (session.isNew())
    {
        title = "Welcome to my website";
        session.setAttribute(userIDKey, userID);
        session.setAttribute(visitCountKey, visitCount);
    }
    visitCount = (Integer)session.getAttribute(visitCountKey);
    visitCount = visitCount + 1;
    userID = (String)session.getAttribute(userIDKey);
    session.setAttribute(visitCountKey, visitCount);
%>
<html>
    <head>
        <title>Session Tracking</title>
    </head>
    <body>
        <center>
            <h1>Session Tracking using JSP YOGESWARI SAHU 18BCE0928 26-05-
2021</h1>
        </center>
        <table border="1" align="center">
            <tr bgcolor="blue">
                <th>Session info</th>
                <th>Value</th>
            </tr>
        </table>
    </body>
</html>
```

```

        </tr>
        <tr >
            <td>id</td>
            <td><% out.print( session.getId()); %></td>
        </tr>
        <tr>
            <td>Creation Time</td>
            <td><% out.print(createTime); %></td>
        </tr>
        <tr>
            <td>Time of Last Access</td>
            <td><% out.print(lastAccessTime); %></td>
        </tr>
        <tr>
            <td>User ID</td>
            <td><% out.print(userID); %></td>
        </tr>
        <tr>
            <td>Number of visits</td>
            <td><% out.print(visitCount); %></td>
        </tr>
    </table>
</body>
</html>

```

web.xml

```

<?xml version="1.0" encoding="UTF-8"?>
<web-app xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://java.sun.com/xml/ns/javaee"
xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
http://java.sun.com/xml/ns/javaee/web-app_3_0.xsd" id="WebApp_ID"
version="3.0">
    <display-name>JSPsessiontracking</display-name>
    <welcome-file-list>
        <welcome-file>index.html</welcome-file>
        <welcome-file>index.htm</welcome-file>
        <welcome-file>index.jsp</welcome-file>
        <welcome-file>default.html</welcome-file>
        <welcome-file>default.htm</welcome-file>
        <welcome-file>default.jsp</welcome-file>
    </welcome-file-list>
    <servlet>
        <servlet-name>Sessiontracking</servlet-name>
        <jsp-file>/Session.jsp</jsp-file>
    </servlet>
    <servlet-mapping>
        <servlet-name>Sessiontracking</servlet-name>
        <url-pattern>/test</url-pattern>
    </servlet-mapping>
</web-app>

```

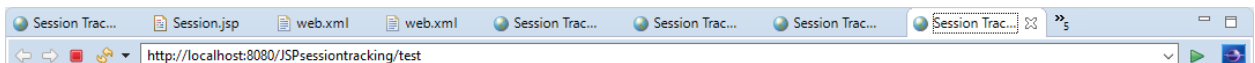
```
</servlet-mapping>
</web-app>
```

Output:



Session Tracking using JSP YOGESWARI SAHU 18BCE0928 26-05-2021

Session info	Value
id	383380DECB45895B9DBABABBF3D52080
Creation Time	Wed May 26 21:38:54 IST 2021
Time of Last Access	Wed May 26 21:41:44 IST 2021
User ID	Yogeswari Sahu
Number of visits	3



Session Tracking using JSP YOGESWARI SAHU 18BCE0928 26-05-2021

Session info	Value
id	383380DECB45895B9DBABABBF3D52080
Creation Time	Wed May 26 21:38:54 IST 2021
Time of Last Access	Wed May 26 21:42:30 IST 2021
User ID	Yogeswari Sahu
Number of visits	4