

1.Create a Telephone directory using JSP and store all the information within a database, so that later could be retrieved as per the requirement. Make your own assumptions.

postgres

#### Creating a Table:

```
CREATE TABLE telephone_directory (
    id SERIAL PRIMARY KEY,
    name VARCHAR(100) NOT NULL,
    phone_number VARCHAR(20) NOT NULL,
    address VARCHAR(200),
    email VARCHAR(100)
);
```

#### Main.jsp

```
<%@page import="java.sql.*"%>
<%
String driver = "org.postgresql.Driver";
String url = "jdbc:postgresql://localhost:5432/postgres";
String username = "postgres";
String password = "password";
Connection con = null;
try {
    Class.forName(driver).newInstance();
    con = DriverManager.getConnection(url, username, password);
    if(request.getParameter("delete") != null) {
        int id = Integer.parseInt(request.getParameter("delete"));
        PreparedStatement pstmt = con.prepareStatement("delete from telephone_directory where id=?");
        pstmt.setInt(1, id);
        pstmt.executeUpdate();
        pstmt.close();
    }
}
```

```

    }

} catch(Exception e) {
    out.println(e);
}

}

// After delete, fetch and display records

PreparedStatement pstmt = null;

ResultSet rs = null;

%>

<html><head><title>Telephone Directory</title></head><body>

<center><h1><a href="add.jsp">Add Entry</a></h1></center>

<table border="1">

<tr><th>ID</th>

<th>Name</th>

<th>Phone Number</th>

<th>Address</th>

<th>Email</th>

<th>Update</th>

<th>Delete</th>

</tr>

<%

try {

pstmt = con.prepareStatement("select * from telephone_directory");

rs = pstmt.executeQuery();

while(rs.next()) {

%>

<tr>

<td><%= rs.getInt("id") %></td>

<td><%= rs.getString("name") %></td>

<td><%= rs.getString("phone_number") %></td>

```

```

<td><%= rs.getString("address") %></td>
<td><%= rs.getString("email") %></td>
<td><a href="update.jsp?edit=<%= rs.getInt("id") %>">Edit</a></td>
<td><a href="?delete=<%= rs.getInt("id") %>">Delete</a></td>
</tr>
<%
}
} catch (Exception e) {
    out.println(e);
} finally {
    if(rs != null) rs.close();
    if(pstmt != null) pstmt.close();
    if(con != null) con.close();
}
%>
</table></body></html>

```

## Add.jsp

```

<%@ page import="java.sql.*" %>
<%
try {
    String driver ="org.postgresql.Driver";
    String url ="jdbc:postgresql://localhost:5432/postgres";
    String username ="postgres";
    String password ="password";
    Connection con =null;
    Class.forName(driver).newInstance();
    con = DriverManager.getConnection(url,username,password);
}
if(request.getParameter("btn_add")!=null) {

```

```

String name = request.getParameter("txt_name");
String phone = request.getParameter("txt_phone");
String address = request.getParameter("txt_address");
String email = request.getParameter("txt_email");

PreparedStatement pstmt = con.prepareStatement("insert into
telephone_directory(name,phone_number,address,email) values(?, ?, ?, ?)");
pstmt.setString(1, name);
pstmt.setString(2, phone);
pstmt.setString(3, address);
pstmt.setString(4, email);

pstmt.executeUpdate();

con.close();

out.println("Insert Successfully...! Click Back link.");
}

} catch(Exception e) {
    out.println(e);
}
%>

<html>
<head>

<title>Add Telephone Entry</title>

</head>

<body>

<form method="post" name="myform">

<table>

<tr><td>Name</td><td><input type="text" name="txt_name"></td></tr>

<tr><td>Phone Number</td><td><input type="text" name="txt_phone"></td></tr>

<tr><td>Address</td><td><input type="text" name="txt_address"></td></tr>

<tr><td>Email</td><td><input type="text" name="txt_email"></td></tr>

<tr><td><input type="submit" name="btn_add" value="Insert"></td></tr>

```

```

</table>

<center><h1><a href="main.jsp">Back</a></h1></center>

</form>

</body>

</html>

```

## Update.jsp

```

<%@ page import="java.sql.*" %>

<%
try {

    String driver ="org.postgresql.Driver";

    String url ="jdbc:postgresql://localhost:5432/postgres";

    String username ="postgres";

    String password ="password";

    Connection con =null;

    Class.forName(driver).newInstance();

    con = DriverManager.getConnection(url,username,password);

    if(request.getParameter("btn_update")!=null) {

        int hide = Integer.parseInt(request.getParameter("txt_hide"));

        String name_up = request.getParameter("txt_name");

        String phone_up = request.getParameter("txt_phone");

        String address_up = request.getParameter("txt_address");

        String email_up = request.getParameter("txt_email");

        PreparedStatement pstmt = con.prepareStatement("update telephone_directory set name=?, phone_number=?, address=?, email=? where id=?");

        pstmt.setString(1, name_up);

        pstmt.setString(2, phone_up);

        pstmt.setString(3, address_up);

        pstmt.setString(4, email_up);

        pstmt.setInt(5, hide);

        pstmt.executeUpdate();
    }
}
%>

```

```

con.close();

out.println("Update Successfully...! Click Back link.");
}

} catch(Exception e) {

    out.println(e);

}

%>

<html><head><title>Update Telephone Entry</title></head><body>

<form method="post" name="myform">

<%

try {

Connection con = DriverManager.getConnection(url.username,password);

if(request.getParameter("edit")!=null) {

int id = Integer.parseInt(request.getParameter("edit"));

PreparedStatement pstmt = con.prepareStatement("select * from telephone_directory where id=?");

pstmt.setInt(1, id);

ResultSet rs = pstmt.executeQuery();

while(rs.next()) {

    id = rs.getInt(1);

    String name = rs.getString(2);

    String phone = rs.getString(3);

    String address = rs.getString(4);

    String email = rs.getString(5);

}

%>

<table>

<tr><td>Name</td><td><input type="text" name="txt_name" value="<%>name%>"></td></tr>

<tr><td>Phone Number</td><td><input type="text" name="txt_phone" value="<%>phone%>"></td></tr>

<tr><td>Address</td><td><input type="text" name="txt_address" value="<%>address%>"></td></tr>

<tr><td>Email</td><td><input type="text" name="txt_email" value="<%>email%>"></td></tr>

```

```

<tr><td><input type="submit" name="btn_update" value="Update"></td></tr>

<input type="hidden" name="txt_hide" value="<%={id%}"></table>

<%>

    }

} catch(Exception e) {

    out.println(e);}

%>

<center><h1><a href="main.jsp">Back</a></h1></center>

</form></body></html>

```

## Output:

### Telephone Directory

[Add Entry](#)

ID	Name	Phone Number	Address	Email	Update	Delete
1	sahil	481941	Nerul	sahil@gmail.com	<a href="#">Edit</a>	<a href="#">Delete</a>
2	rohan	414122	Thane	rohan@gmail.com	<a href="#">Edit</a>	<a href="#">Delete</a>
3	susmit	414531	panvel	susmit@gmail.com	<a href="#">Edit</a>	<a href="#">Delete</a>
4	atharv	434212	Vashi	atharv@gmail.com	<a href="#">Edit</a>	<a href="#">Delete</a>
5	gautam	424514	Seawood	gautam@gmail.com	<a href="#">Edit</a>	<a href="#">Delete</a>
6	aniket	414212	belapur	aniket@gmail.com	<a href="#">Edit</a>	<a href="#">Delete</a>
7	student	241415	delhi	student@gmail.com	<a href="#">Edit</a>	<a href="#">Delete</a>

### Add Telephone Entry

Name:

Phone Number:

Address:

Email:

2. Write a JSP page to display the Registration form (Make your own assumptions).

**Create a Database**

```
Table CREATE TABLE
studentreg1 (
    id SERIAL PRIMARY KEY,
    first_name varchar(50),
    last_name varchar(50),
    phn_number varchar(20),
    address varchar(20),
    course varchar(20),
    college_name
    varchar(20)

);
```

**Add.jsp**

```
<%@ page import="java.sql.*" %>

<%
try {
    String driver = "org.postgresql.Driver";
    String url = "jdbc:postgresql://localhost:5432/postgres";
    String username = "postgres";
    String password = "admin";

    Connection con = null;

    Class.forName(driver).newInstance();
    con = DriverManager.getConnection(url, username, password);

    System.out.println("Opened database successfully");

    // Check button click event
    if (request.getParameter("btn_add") != null) {
        String first_name, last_name, phn_number, address, course, college_name;
        first_name = request.getParameter("txt_first_name");
        last_name = request.getParameter("txt_last_name");
        phn_number =
            request.getParameter("txt_phn_number"); address =
            request.getParameter("txt_address");
        course = request.getParameter("txt_course");
        college_name = request.getParameter("txt_college_name");

        PreparedStatement pstmt = null;

        pstmt = con.prepareStatement(
            "INSERT INTO studentreg1 " +
```

```

        "(first_name, last_name, phn_number, address, course, college_name) " +
        "VALUES (?, ?, ?, ?, ?, ?)"

    );

    pstmt.setString(1, first_name);
    pstmt.setString(2, last_name);
    pstmt.setString(3, phn_number);
    pstmt.setString(4, address);
    pstmt.setString(5, course);
    pstmt.setString(6, college_name);

    pstmt.executeUpdate();

    con.close();

    out.println("Insert Successfully...!");

}

} catch (Exception e) {
    out.println(e);

}

%>

<html>
<head>
    <title>Student Registration</title>

    <!-- JavaScript for form validation -->
    <script>
        function validate() {
            var first_name =
                document.myform.txt_first_name; var last_name =
                document.myform.txt_last_name;
            var phn_number = document.myform.txt_phn_number;
            var address = document.myform.txt_address;
            var course = document.myform.txt_course;
            var college_name = document.myform.txt_college_name;

            if (first_name.value == "") {
                window.alert("Please enter a first
name"); first_name.focus();
                return false;
            }

            if (last_name.value == "") {
                window.alert("Please enter a last name");
                last_name.focus();
                return false;
            }
        }
    </script>

```

```

        }

        if (phn_number.value == "") {
            window.alert("Please enter a mobile
            number"); phn_number.focus();
            return false;
        }

        if (address.value == "") {
            window.alert("Please enter
            address"); address.focus();
            return false;
        }

        if (course.value == "") {
            window.alert("Please enter
            course"); course.focus();
            return false;
        }

        if (college_name.value == "") {
            window.alert("Please enter college name");
            college_name.focus();

            return false;
        }

        return true;
    }

</script>
</head>

<body bgcolor="deea94">
<div align="center">
<form method="post" name="myform" onsubmit="return validate();">

<h1><u>STUDENT REGISTRATION FORM</u></h1>
<br>

<table>
<tr>
<td><b>First Name:</b></td>
<td><input type="text" name="txt_first_name"></td>
</tr>

<tr>
<td><b>Last Name:</b></td>

```

```

<td><input type="text" name="txt_last_name"></td>
</tr>

<tr>
<td><b>Phone Number:</b></td>
<td><input type="text" name="txt_phn_number"></td>
</tr>

<tr>
<td><b>Address:</b></td>
<td><input type="text" name="txt_address"></td>
</tr>

<tr>
<td><b>Course:</b></td>
<td><input type="text" name="txt_course"></td>
</tr>

<tr>
<td><b>College Name:</b></td>
<td><input type="text" name="txt_college_name"></td>
</tr>

<tr>
<td colspan="2" align="center">
<br>
<input type="submit" name="btn_add" value="Submit">

<br>
</td>
</tr>
</table>

<br>

<p>
<span>↪</span>
<u>Click Below to list all the</u>
<span>↪</span>
</p>

<p>
<a href="index.jsp">Registered Students Details</a>
</p>

</form>
</div>

```

```
</body>
</html>
```

## Index.jsp

```
<%@ page import="java.sql.*" %>
<%
try {
    String driver = "org.postgresql.Driver";
    String url = "jdbc:postgresql://localhost:5432/postgres";
    String username = "postgres";
    String password = "admin";

    Connection con = null;

    Class.forName(driver).newInstance();
    con = DriverManager.getConnection(url, username, password);

    System.out.println("Opened database successfully");

    if (request.getParameter("delete") != null) {
        int id = Integer.parseInt(request.getParameter("delete"));

        PreparedStatement pstmt = null; pstmt = con.prepareStatement(
            "DELETE FROM studentreg1 WHERE id = ?"
        );

        pstmt.setInt(1, id);
        pstmt.executeUpdate();
        con.close();
    }

    } catch (Exception e) {
        out.println(e);
    }
}

%>

<html>
<head>
    <title>JSP: Insert, Update, Delete</title>
</head>
<body bgcolor="F9CDAD">
    <br><br><br>
    <center>
        <h1><u>DETAILS OF REGISTERED STUDENTS</u></h1>
    </center>
    <br><br>
    <center>
        <table border="1" cellpadding="23">
            <tr>
                <th>ID</th>
                <th>First Name</th>
```

```

<th>Last Name</th>
<th>Mobile Number</th>
<th>Address</th>
<th>Course</th>
<th>College Name</th>
</tr>

<%

try {
    String driver = "org.postgresql.Driver";
    String url = "jdbc:postgresql://localhost:5432/postgres";
    String username = "postgres";
    String password = "admin";

    Connection con = null;

    Class.forName(driver).newInstance();
    con = DriverManager.getConnection(url, username, password);

    PreparedStatement pstmt = null;
    pstmt = con.prepareStatement(
        "SELECT * FROM studentreg1"
    );
    ResultSet rs = pstmt.executeQuery();
    while (rs.next()) {
        %>

        <tr>
            <td><%= rs.getInt(1) %></td>
            <td><%= rs.getString(2) %></td>
            <td><%= rs.getString(3) %></td>
            <td><%= rs.getString(4) %></td>
            <td><%= rs.getString(5) %></td>
            <td><%= rs.getString(6) %></td>
            <td><%= rs.getString(7) %></td>
        </tr>
        <%
    }

    } catch (Exception e) {
        out.println(e);
    }

%>

</table>
</center>
</body>
</html>

```

### Output:

Successfully...!

### **STUDENT REGISTRATION FORM**

**First Name:** John  
**Last Name:** Cena  
**Phone number** 9000123456  
**Address:** Belapur  
**Course:** MCA  
**College Name** BVIMIT

↓ Click Below to list all the ↓

[Registered Students Details](#)

### **DETAILS OF REGISTERED STUDENTS**

ID	First Name	Last Name	Mobile Number	Address	College Name
1	John	Cena	9000123456	Belapur	MCA

3. Write a JSP program to add, delete and display the records from StudentMaster (RollNo, Name, Semester, Course) table.

```
CREATE TABLE StudentMaster (
    RollNo INTEGER PRIMARY KEY,
    Name VARCHAR(100) NOT NULL,
    Semester VARCHAR(20),
    Course VARCHAR(100)
);
```

```
<%@page import="java.sql.*" %>
<%
String driver = "org.postgresql.Driver";
String url = "jdbc:postgresql://localhost:5432/postgres";
String username = "postgres";
String password = "password";
Connection con = null;
PreparedStatement pstmt = null;
ResultSet rs = null;

try {
    Class.forName(driver).newInstance();
    con = DriverManager.getConnection(url, username, password);

    if(request.getParameter("delete") != null) {
        int rollNo = Integer.parseInt(request.getParameter("delete"));
    }
}
```

```

        pstmt = con.prepareStatement("DELETE FROM StudentMaster WHERE RollNo=?");

        pstmt.setInt(1, rollNo);

        pstmt.executeUpdate();

    }



pstmt = con.prepareStatement("SELECT * FROM StudentMaster");



rs = pstmt.executeQuery();



%>



<html>



<head><title>StudentMaster Records</title></head>



<body>



<center><h1><a href="StudentAdd.jsp">Add Student</a></h1></center>



<table border="1">



<tr><th>RollNo</th><th>Name</th><th>Semester</th><th>Course</th><th>Delete</th></tr>



<% while(rs.next()) { %>



<tr>



<td><%= rs.getInt("RollNo") %></td>



<td><%= rs.getString("Name") %></td>



<td><%= rs.getString("Semester") %></td>



<td><%= rs.getString("Course") %></td>



<td><a href="?delete=<%= rs.getInt("RollNo") %>">Delete</a></td>



</tr>



<% } %>



</table>



</body>



</html>


```

```
<%
} catch(Exception e) { out.println(e); }

finally {

    if(rs != null) rs.close();

    if(stmt != null) stmt.close();

    if(con != null) con.close();

}

%>
```

```
<%@ page import="java.sql.*" %>

<%

String driver = "org.postgresql.Driver";

String url = "jdbc:postgresql://localhost:5432/postgres";

String username = "postgres";

String password = "password";

Connection con = null;

try {

    Class.forName(driver).newInstance();

    con = DriverManager.getConnection(url, username, password);

    if(request.getParameter("btn_add") != null) {

        int rollNo = Integer.parseInt(request.getParameter("txt_roll"));

        String name = request.getParameter("txt_name");

        String semester = request.getParameter("txt_semester");


```

```

        String course = request.getParameter("txt_course");

        PreparedStatement pstmt = con.prepareStatement("INSERT INTO StudentMaster
VALUES(?,?,?,?,?)");

        pstmt.setInt(1, rollNo);

        pstmt.setString(2, name);

        pstmt.setString(3, semester);

        pstmt.setString(4, course);

        pstmt.executeUpdate();

        out.println("Student added successfully!");

    }

} catch(Exception e) { out.println(e); }

%>

<html>
<head><title>Add Student</title></head>
<body>
<form method="post">
<table>
<tr><td>Roll No:</td><td><input type="text" name="txt_roll"></td></tr>
<tr><td>Name:</td><td><input type="text" name="txt_name"></td></tr>
<tr><td>Semester:</td><td><input type="text" name="txt_semester"></td></tr>
<tr><td>Course:</td><td><input type="text" name="txt_course"></td></tr>
<tr><td colspan="2"><input type="submit" name="btn_add" value="Add
Student"></td></tr>
</table>
<center><a href="StudentMain.jsp">Back</a></center>
</form>
</body>

```

```
</html>
```

StudentMain.jsp StudentAdd.jsp loan.jsp Add Student

http://localhost:1606/jdbcConnection/StudentAdd.jsp

Student added successfully!

Roll No:

Name:

Semester:

Course:

[Back](#)

StudentMain.jsp StudentAdd.jsp loan.jsp StudentMaster Records

http://localhost:1606/jdbcConnection/StudentMain.jsp

## Add Student

RollNo	Name	Semester	Course	Delete
61	Arnav Tambe	1	MCA	<a href="#">Delete</a>

4.Design a loan calculator using JSP which accepts Period offline (in years) and Principal Loan Amount. Display the repayment amount for each loan and then list the loan balance and interest paid for each payment over the term of the loan for the following time period and interest rate:

- a. 1 to 7 year at 5.35\%
- b. 8 to 15 year at 5.5\%
- c. 16 to 30 year at 5.6\%

```
<%@ page import="java.text.DecimalFormat" %>

<%
    DecimalFormat df = new DecimalFormat("0.00");

    double principal = 0, rate = 0, years = 0;

    if(request.getParameter("calculate") != null) {

        principal = Double.parseDouble(request.getParameter("principal"));

        years = Double.parseDouble(request.getParameter("years"));

        // Interest rate based on years

        if(years >= 1 && years <= 7)

            rate = 5.35;

        else if(years <= 15)

            rate = 5.5;

        else if(years <= 30)

            rate = 5.75;

        else

            out.println("<p style='color:red;'>Enter a loan period between 1 and 30
years.</p>");

    }

%>

<html>
```

```

<head>

    <title>Simple Loan Calculator</title>

</head>

<body>

    <h2>Loan Calculator</h2>

    <form method="post">

        <label>Principal (₹): </label>

        <input type="text" name="principal" value="<% request.getParameter("principal") != null ? request.getParameter("principal") : "" %>"><br><br>

        <label>Years: </label>

        <input type="text" name="years" value="<% request.getParameter("years") != null ? request.getParameter("years") : "" %>"><br><br>

        <input type="submit" name="calculate" value="Calculate">

    </form>

    <%
        if(rate > 0) {

            double monthlyRate = rate / 100 / 12;

            int months = (int)(years * 12);

            double monthlyPayment = principal * monthlyRate / (1 - Math.pow(1 + monthlyRate, -months));
        }
    %>

    <h3>Loan Summary</h3>

    <p>Principal: ₹<% df.format(principal) %></p>

```

```

<p>Years: <%= years %></p>

<p>Rate: <%= rate %></p>

<p>Monthly Payment: ₹<%= df.format(monthlyPayment) %></p>



### Amortization Schedule



| Month | Payment (₹) | Interest (₹) | Principal (₹) | Balance (₹) |
|-------|-------------|--------------|---------------|-------------|
|-------|-------------|--------------|---------------|-------------|



<%
double balance = principal;

for(int i = 1; i <= months; i++) {
    double interest = balance * monthlyRate;
    double principalPaid = monthlyPayment - interest;
    balance -= principalPaid;
    if(balance < 0) balance = 0;
%>

| <%= i %> | <%= df.format(monthlyPayment) %> | <%= df.format(interest) %> | <%= df.format(principalPaid) %> | <%= df.format(balance) %> |

```

```

        </tr>
    <%
    }
}

%>

</table>

</body>

</html>

```

**Loan Calculator**

Principal (₹):

Years:

**Loan Summary**

Principal: ₹241660.00

Years: 8.0

Rate: 5.5%

Monthly Payment: ₹3117.25

**Amortization Schedule**

Month	Payment (₹)	Interest (₹)	Principal (₹)	Balance (₹)
1	3117.25	1107.61	2009.64	239650.36
2	3117.25	1098.40	2018.85	237631.51
3	3117.25	1089.14	2028.11	235603.40
4	3117.25	1079.85	2037.40	233566.00
5	3117.25	1070.51	2046.74	231519.26

5. Write a program using JSP that displays a webpage consisting of an Application form for change of Study Center which can be filled by a student who wants to change his/her study center. Make necessary assumptions.

```
CREATE TABLE StudyCenterChange (
    ApplicationID SERIAL PRIMARY KEY,
    RollNo INTEGER NOT NULL,
    Name VARCHAR(100) NOT NULL,
    CurrentCenter VARCHAR(100),
    RequestedCenter VARCHAR(100),
    Reason TEXT,
    SubmissionDate TIMESTAMP DEFAULT CURRENT_TIMESTAMP
);
```

change\_center\_application.jsp

Code:

```
<%@ page import="java.sql.*" %>

<html>
<head><title>Change of Study Center Form</title></head>
<body>

    <h2>Application for Change of Study Center</h2>

    <form method="post" action="submit_application.jsp">

        <table>

            <tr><td>Roll No:</td><td><input type="text" name="rollno" required></td></tr>
```

```

        <tr><td>Name:</td><td><input type="text" name="name" required></td></tr>

        <tr><td>Current Study Center:</td><td><input type="text"
name="current_center" required></td></tr>

        <tr><td>Requested Study Center:</td><td><input type="text"
name="requested_center" required></td></tr>

        <tr><td>Reason for Change:</td><td><textarea name="reason" rows="4"
cols="40"></td></tr>

        <tr><td colspan="2"><input type="submit" value="Submit
Application"></td></tr>

    </table>

</form>

<center><a href="view_application.jsp">View Submitted Applications</a></center>

</body>

</html>

```

submit\_application.jsp

Code:

```

<%@ page import="java.sql.*" %>

<%
String driver = "org.postgresql.Driver";
String url = "jdbc:postgresql://localhost:5432/postgres";
String username = "postgres";
String password = "password";

try {
    Class.forName(driver).newInstance();
    Connection con = DriverManager.getConnection(url, username, password);
}

```

```
int rollNo = Integer.parseInt(request.getParameter("rollno"));

String name = request.getParameter("name");

String currentCenter = request.getParameter("current_center");

String requestedCenter = request.getParameter("requested_center");

String reason = request.getParameter("reason");



PreparedStatement pstmt = con.prepareStatement(

        "INSERT INTO StudyCenterChange (RollNo, Name, CurrentCenter,
RequestedCenter, Reason) VALUES (?, ?, ?, ?, ?, ?)"

);

pstmt.setInt(1, rollNo);

pstmt.setString(2, name);

pstmt.setString(3, currentCenter);

pstmt.setString(4, requestedCenter);

pstmt.setString(5, reason);

pstmt.executeUpdate();




out.println("<h3>Application submitted successfully!</h3>");

out.println("<a href='change_center_form.jsp'>Submit Another</a> | <a
href='view_applications.jsp'>View Applications</a>");




pstmt.close();

con.close();

} catch(Exception e) {

    out.println("<p style='color:red;'>Error: " + e.getMessage() + "</p>");

}

%>
```

view\_application.jsp

Code:

```
<%@ page import="java.sql.*" %>

<%
    String driver = "org.postgresql.Driver";
    String url = "jdbc:postgresql://localhost:5432/postgres";
    String username = "postgres";
    String password = "password";
    Connection con = null;
    PreparedStatement pstmt = null;
    ResultSet rs = null;

    try {
        Class.forName(driver).newInstance();
        con = DriverManager.getConnection(url, username, password);
        pstmt = con.prepareStatement("SELECT * FROM StudyCenterChange ORDER BY SubmissionDate DESC");
        rs = pstmt.executeQuery();
    }
%>

<html>
<head><title>Submitted Applications</title></head>
<body>
    <h2>Submitted Applications for Study Center Change</h2>
```

```

<table border="1">

    <tr>

        <th>Application ID</th>
        <th>Roll No</th>
        <th>Name</th>
        <th>Current Center</th>
        <th>Requested Center</th>
        <th>Reason</th>
        <th>Submission Date</th>

    </tr>

    <% while(rs.next()) { %>

        <tr>

            <td><%= rs.getInt("ApplicationID") %></td>
            <td><%= rs.getInt("RollNo") %></td>
            <td><%= rs.getString("Name") %></td>
            <td><%= rs.getString("CurrentCenter") %></td>
            <td><%= rs.getString("RequestedCenter") %></td>
            <td><%= rs.getString("Reason") %></td>
            <td><%= rs.getTimestamp("SubmissionDate") %></td>

        </tr>

    <% } %>

</table>

<center><a href="change_center_form.jsp">Back to Form</a></center>

</body>

</html>

<%
} catch(Exception e) {

```

```

        out.println("<p style='color:red;'>Error: " + e.getMessage() + "</p>");

    } finally {

        if(rs != null) rs.close();

        if(pstmt != null) pstmt.close();

        if(con != null) con.close();

    }

%>

```

## Output:

Application for Change of Study Center

Roll No: 061  
 Name: Arnav Tambe  
 Current Study Center: BVIMIT  
 Requested Study Center: VJTI  
 Reason for Change: It is the BEST  
 Submit Application

[View Submitted Applications](#)

Application submitted successfully!

[Submit Another](#) | [View Applications](#)

Submitted Applications for Study Center Change

Application ID	Roll No	Name	Current Center	Requested Center	Reason	Submission Date
1	61	Arnav Tambe	BVIMIT	VJTI	It is the BEST	2025-11-13 15:42:16.472428

[Back to Form](#)

6. Write a JSP program that demonstrates the use of JSP declaration, scriptlet, directives, expression, header and footer.

### Scriptlet program

```
<%@ page language="java" contentType="text/html;
charset=ISO-8859-1" pageEncoding="ISO-8859-1"%>      <%String
string1="JSP scriptlet"; %>
<%!String string2 = " ";%>
<!DOCTYPE html>
<html>
```

```
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<h1>
<%-- --%>
Welcome to <%=string1 %>
</h1>
<%if(string1.equals("jsp scriplet"))
out.println("hi"+string2); else out.println("hello"); %>
</body>
</html>
```



## Cookies

### Main.jsp :

```
<%@ page language="java" contentType="text/html;
charset=ISO-8859-1"      pageEncoding="ISO-8859-1"%>

<!DOCTYPE html>

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

<title>JSP EXAMPLE</title>
</head>
<body>
<%@ include file = "header.jsp" %>
<center>
<%! int data=50; %>
<%= "Value of the variable is:"+data %> <%
double circle(int n){ return 3.14*n*n;}
%><br>
<%= "Area of circle is:"+ circle(3) %><br> <%
int rectangle(int l,int b){ return l*b;}
%>
<%= "Area of rectangle is:"+rectangle(3,4 ) %><br> <%
int perimeter(int x,int y){
```

```
int peri=2*(x+y);

return peri; }

%>

<%= "Perimeter of rectanlge:"+perimeter(5,6
) %></br>

<p>Thanks for visiting my page.</p>
</center>

<%@ include file = "footer.jsp" %>
</body>
</html>
```

### Header.jsp :

```
<%@ page language="java" contentType="text/html;
charset=ISO-8859-1"      pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>

<%
int pageCount = 0;
void addCount() {
    pageCount++;
}
%>
<% addCount(); %>
<html>
```

```
<head>
<title>JSP declaration, scriptlet, directives, expression,
header and footer Example</title> </head>
<body>
<center>
<h2><u>The include Directive Example</u></h2>
<p><b>This site has been visited <%= pageCount %>
times.</b></p>
</center>

<br/><br/>

</body>
</html>
```

### Footer.jsp:

```
<%@ page language="java" contentType="text/html;
charset=ISO-8859-1"      pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
```

```
<br/><br/>
</body></html>
```

Output:

/localhost:1234/directives/main.jsp  
header.jsp footer.jsp

## The include Directive Example

This site has been visited 1 times.

Value of the variable is:50  
Area of circle is:28.255999999999998  
Area of rectangle is:112  
Perimeter of rectangle:2:2'

Thanks for visiting my page.

7. Write a JSP program that demonstrates the use of Cookies and session tracking in Java.

#### form.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<form action="cookie_main.jsp"
method="GET">
Username: <input type="text"
name="username"> <br />
Email: <input type="text" name="email" />
<input type="submit" value="Submit" />
</form>
</body>
</html>
```

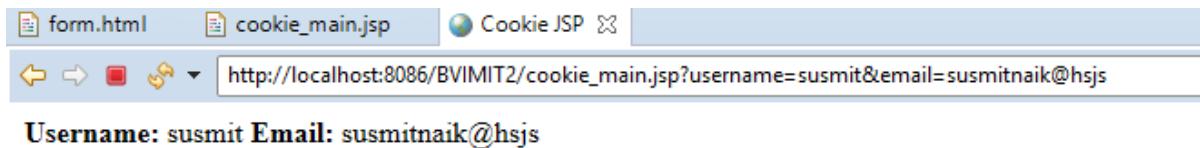
#### cookie\_main.jsp

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Cookie JSP</title>
<body>
<%
Cookie username= new Cookie("username", request.getParameter("username"));
Cookie email= new Cookie("email", request.getParameter("email"));
username.setMaxAge(60*60*10);
email.setMaxAge(60*60*10);

// Add both the cookies in the response header.

response.addCookie( username );
response.addCookie( email );
%>
</head>
<body>
<b>Username:</b>
<%= request.getParameter("username") %>
<b>Email:</b>
```

```
<%= request.getParameter("email") %>
</body>
</html>
```



### session.jsp

```
<%@page import = "java.io.*,java.util.*"%>

<%
Date creationTime = new Date(session.getCreationTime());
Date lastaccessTime = new Date(session.getLastAccessedTime());
String title = "My website";
Integer visit = new Integer(0);
String visitCount = new String("visit");

String userID = new String("XYZ");

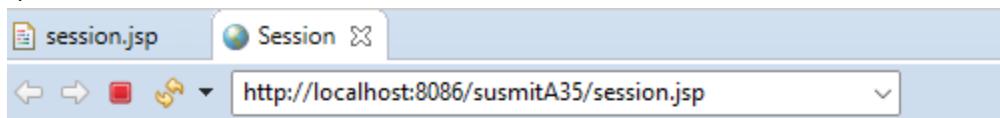
String userIDCount = new String("userID");

if (session.isNew()) {

    title = "My website";
    session.setAttribute(userIDCount, userID);
    session.setAttribute(visitCount, visit);
}
visit = (Integer) session.getAttribute(visitCount);
visit = visit+1;
userID =(String) session.getAttribute(userIDCount);
session.setAttribute(visitCount, visit);
%>
<html>
<head><title>Session</title>
</head>
<body>
    <h2>Session tracking</h2>
    <%out.print(session.getId());%>
    Session Creation Time <%out.print(creationTime);%>
    Last Access Time <%out.print(lastaccessTime);%>
    User ID <%out.print(userID);%>

```

```
No. of Visits <%out.print(visit);%>  
</body>  
</html>
```



## Session tracking

69EFEF43C3F2C41624C3194BE80B8169  
Session Creation Time Thu Oct 16 12:25:02 IST 2025  
Last Access Time Thu Oct 16 12:44:40 IST 2025  
User ID XYZ  
No. of Visits 8