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Practical Sheet

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Title: Java Server Page (JSP)

Introduction:

Java Server Page (JSP):

JSP is a technology used to develop dynamic web pages and is part of the Java EE (Enterprise Edition) platform. JSP allows developers to embed Java code within HTML pages, making it easier to create dynamic content and interact with database.

Benefits of JSP over Servlets:

i) Simplicity : JSP allows to embed Java in HTML it simplifies process of creating dynamic webpages.
ii) Productivity : JSP provides a more natural and efficient way to develop web applications, reducing the amount of Java code.
iii) Separation of Concerns: JSP encourages the separation of business logic from presentation logic.

Difference with servlets:

While both JSP and Servlets are Java-based technologies for web development, the main difference lies in their approach. Servlets are Java classes that are responsible for handling requests and generating responses, and they typically involve mixing HTML code with Java code. JSP, on the other hand allows developers to embed Java code directly within HTML pages, providing a more natural way to create dynamic content.

JSP Access Models:

i) Page-centric model: JSP page is used as the primary element for handling requests.

ii) Model-centric model: JSP is used as a template for creating reusable components, with the actual processing handled by JavaBeans or servlets.

JSP Syntax:

i) scriptlet: '<%. ....%.>' - Used for embedding Java code within HTML.

ii) Declaration: '<%.! .... %.>' - Used for declaring variables and methods.

iii) Expression: '<%.= ....%.>' - Used for outputting data to the client.

iv) Comment: '<%.-- ... --%.>' - Used for adding comments to the JSP page.

v) Directive: '<%.@ .... %.>' - Used for providing global information about the JSP page.

JSP Actions:

JSP actions are XML-based tags that provide functionality beyond what is achievable with scriptlets. E.g: '<jsp:include>', '<jsp:forward>' and '<jsp:useBean>'.

JSP Implicit Objects:

JSP provides several implicit objects such as 'request', 'response', 'session', and 'out', which can be used within JSP pages without explicit declaration.

Object Scopes:

JSP supports various object scopes like page, request, session, and application, allowing developers to control the lifecycle and accessibility of objects.

Reading Form Data using JSP:

Form data can be accessed in JSP using the 'request' object. Parameters from a form are typically retrieved using 'request.getParameter("parameterName")'.

Database Access with JSP:

JSP ~~simplifies~~ utilizes JDBC for seamless database interaction, enabling developers to establish connections, execute queries, and process results. Its embedded Java code in HTML promotes cleaner separation of concerns and boosts productivity, while JSP actions, implicit objects, and object scopes enhance flexibility in web development.

Code:

```
<%@ page language = "java" contentType = "text/html; charset = ISO-8859-1"
    page Encoding = "ISO-8859-1"%>
<%@ page import = "java.sql.*"%>
<!DOCTYPE html>
<html>
<head>
    <meta charset = "ISO-8859-1">
    <title> Test JDBC </title>
</head>
<body>
    <%
        String url = "jdbc:mysql://localhost:3306/javapdac";
        String username = "root";
        String dpassword = "";
        try{
            Connection con = DriverManager.getConnection(url, username,
                                                        dpassword);
            String sql = "select id, name, email from users";
            PreparedStatement stmt = con.prepareStatement(sql);
            ResultSet rs = stmt.executeQuery();
            if(!rs.next()){
                    out.println("No records found in the table.");
            }else{
             %>
        <table border = "1">
            <thead>
                <tr>
                    <th> ID </th>
                    <th> Name </th>
                    <th> Email </th>
                </tr>
            </thead>
```

```
        <tbody>
            <%
                do {
            %>
            <tr>
                <td><%= rs.getString("id") %></td>
                <td><%= rs.getString("name") %></td>
                <td><%= rs.getString("email") %></td>
            </tr>
            <%
                } while (rs.next());
            %>
        </tbody>
    </table>
    <%
    } catch (Exception e) {
            e.printStackTrace();
            out.println(e);
    }
    %>
</body>
</html>
```

ID	Name	Email
1	Utsav	utsav@gmail.com
2	Utsav	utsav@gmail.com
3	Ram	ram@gmail.com
4	Hari	bahadur@gmail.com
5	John	john@gmail.com
6	Alice	alice@gmail.com
7	Utsav Sharma	sharma@gmail.com
8	Java	java@gmail.com
9	Lal	lal@gmail.com