

Practical No 8

Aim: Write a Java program to implement JSP implicit and explicit object

Resources Required:

- Java Development Kit (JDK)
- Text Editor (e.g., Notepad++) or IDE (e.g., Eclipse, IntelliJ IDEA, NetBeans)
- Command-line terminal or Java compiler

Theory:

JavaServer Pages (JSP) is a server-side technology that creates dynamic web applications. It allows developers to embed Java code directly into HTML pages and it makes web development more efficient.

JSP is an advanced version of Servlets. It provides enhanced capabilities for building scalable and platform-independent web pages.

Features :

- It is platform-independent; we can write once, run anywhere.
- It simplifies database interactions for dynamic content.
- It contains predefined objects like request, response, session and application, reducing development time.
- It has built-in mechanisms for exception and error management.
- It supports custom tags and tag libraries

JSP Implicit object

These are predefined Java objects provided by the JSP container, offering direct access to fundamental web components

- request: Represents the `HttpServletRequest` object, providing access to client request data, parameters, and attributes.
- response: Represents the `HttpServletResponse` object, used for sending responses back to the client, setting headers, and managing output.
- out: Represents the `JspWriter` object, used for writing content directly to the response stream that will be sent to the client.
- session: Represents the `HttpSession` object, used for managing user-specific data across multiple requests within a single session.
- application: Represents the `ServletContext` object, providing access to application-wide data and resources shared across all users and sessions.
- config: Represents the `ServletConfig` object, used to access initialization parameters defined for the JSP or servlet.
- pageContext: Represents the `PageContext` object, providing access to all other implicit objects and managing attributes within different scopes (page, request, session, application).

- `page`: Represents the current JSP page instance (equivalent to this in a Java class).
- `exception`: Represents the Throwable object, available only in error pages, providing details about an exception that occurred.

JSP Explicit Object:

In JavaServer Pages (JSP), explicit objects refer to Java class instances that are explicitly declared and created within the code of your JSP page.

Source Code:

```
<%@ page language="java" contentType="text/html" pageEncoding="UTF-8" isErrorPage="true" %>
<html>
<head><title>JSP Implicit & Explicit Objects</title></head>
<body>
<%
    // 1. request - get parameter
    String name = request.getParameter("name");
    if (name == null) name = "Guest";

    // 2. response - set content type (optional, usually set by page directive)
    response.setContentType("text/html");

    // 3. out - print
    out.println("<h3>Hello, " + name + "</h3>");

    // 4. session - save attribute
    session.setAttribute("username", name);

    // 5. application - set app-wide attribute
    application.setAttribute("appTitle", "Simple JSP Demo");

    // 6. config - get servlet name
    out.println("<p>Servlet Name: " + config.getServletName() + "</p>");

    // 7. pageContext - get attribute from application scope
    out.println("<p>Application Title: " + pageContext.getAttribute("appTitle",
    PageContext.APPLICATION_SCOPE) + "</p>");

    // 8. page - current servlet instance class
    out.println("<p>Page Object: " + page.getClass().getName() + "</p>");

    // 9. exception - only for error pages
    if (exception != null) {
        out.println("<p>Exception: " + exception.getMessage() + "</p>");
    } else {
        out.println("<p>No exception on this page.</p>");
    }
}%>
```

```
// Explicit object: create current date
java.util.Date date = new java.util.Date();
out.println("<p>Current Date and Time: " + date.toString() + "</p>");
%>
```

```
<form method="get" action="example.jsp">
  Enter your name: <input type="text" name="name" />
  <input type="submit" value="Submit" />
</form>
```

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

Output:

Hello, Alice

Servlet Name: example.jsp

Application Title: Simple JSP Demo

Page Object: org.apache.jsp.example_jsp

No exception on this page.

Current Date and Time: Wed Sep 24 14:37:22 UTC 2025

Conclusion:

This Java program successfully demonstrates jsp implicit and explicit objects.