HEXAWARE

Web Application- JSP

Objectives

- Enable the developer to create the website
- Using the elements of Jsp
- Understand the life cycle and utilize the flow of the
- Jsp life cycle
- Configuring the list of webpages
- Configuring the session time out through web.xml

Java Server Pages Technology

- Java Server Pages enable you to write standard HTML pages containing tags that run powerful programs based on Java technology.
- The goal of JSP technology is to support separation of presentation and business logic:
- Web designers can design and update pages without learning the Java programming language.
- Programmers for Java platform can write code without dealing with web page design.

Sample Jsp Code

```
<%! private static final String DEFAULT_NAME = “World”; %>

<html>

<head>
<title>Hello Java Server Page</title>
</head>

<%-- Determine the specified name (or use default) --%>
<%
String name = request.getParameter(“name”);
if ( (name == null) || (name.length() == 0) ) {
name = DEFAULT_NAME;
}
%>

<body bgcolor=’white’>

<b>Hello, <%= name %></b>
```


JSP LIFE Cycle

1.Translate the JSP to Ready servlet code

2. Compile the servlet to byte code.

3. Load the servlet class.

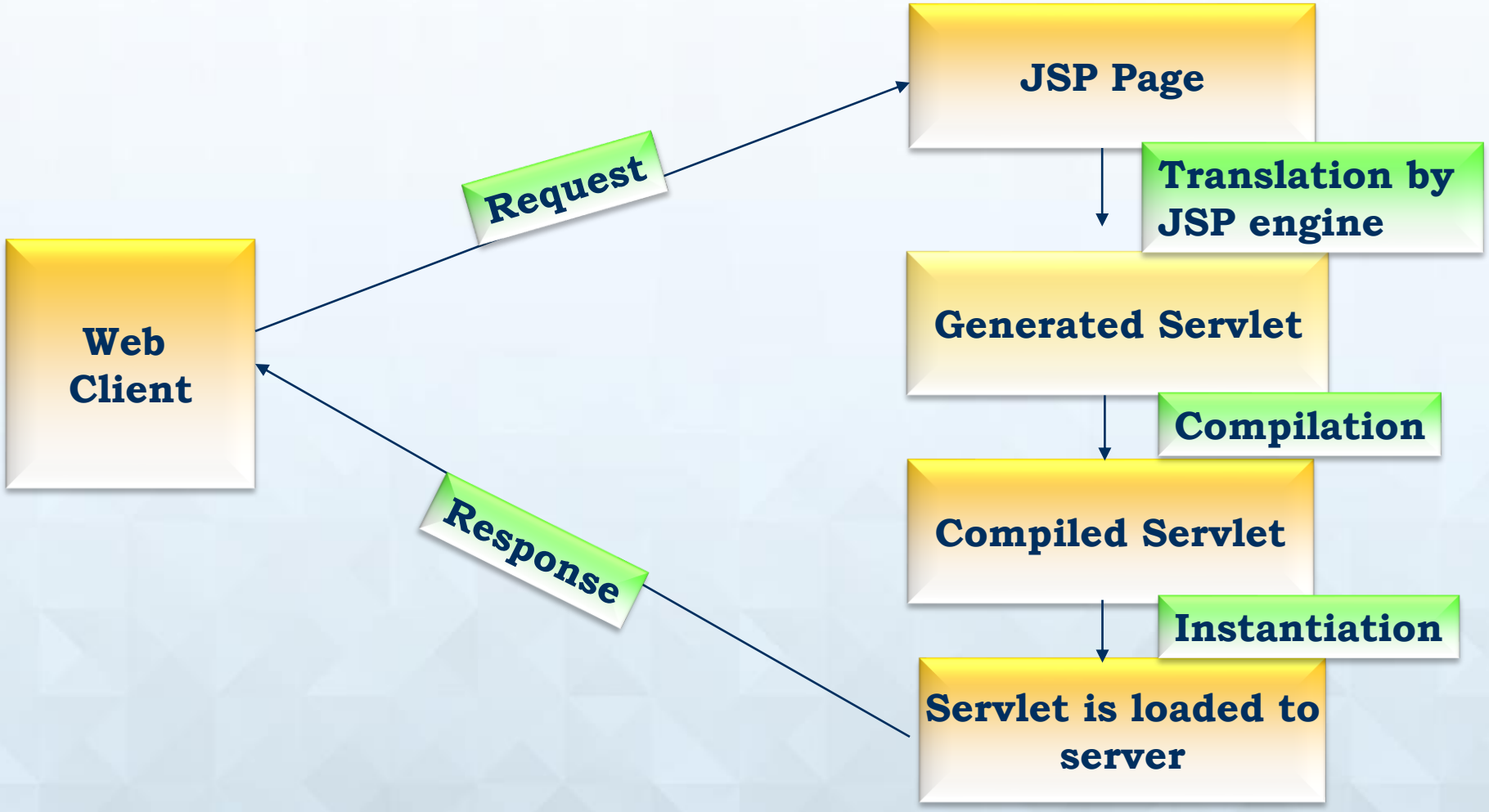
4. Create the servlet instance.

5. Call the jspInit method.

6. Call the _jspService method

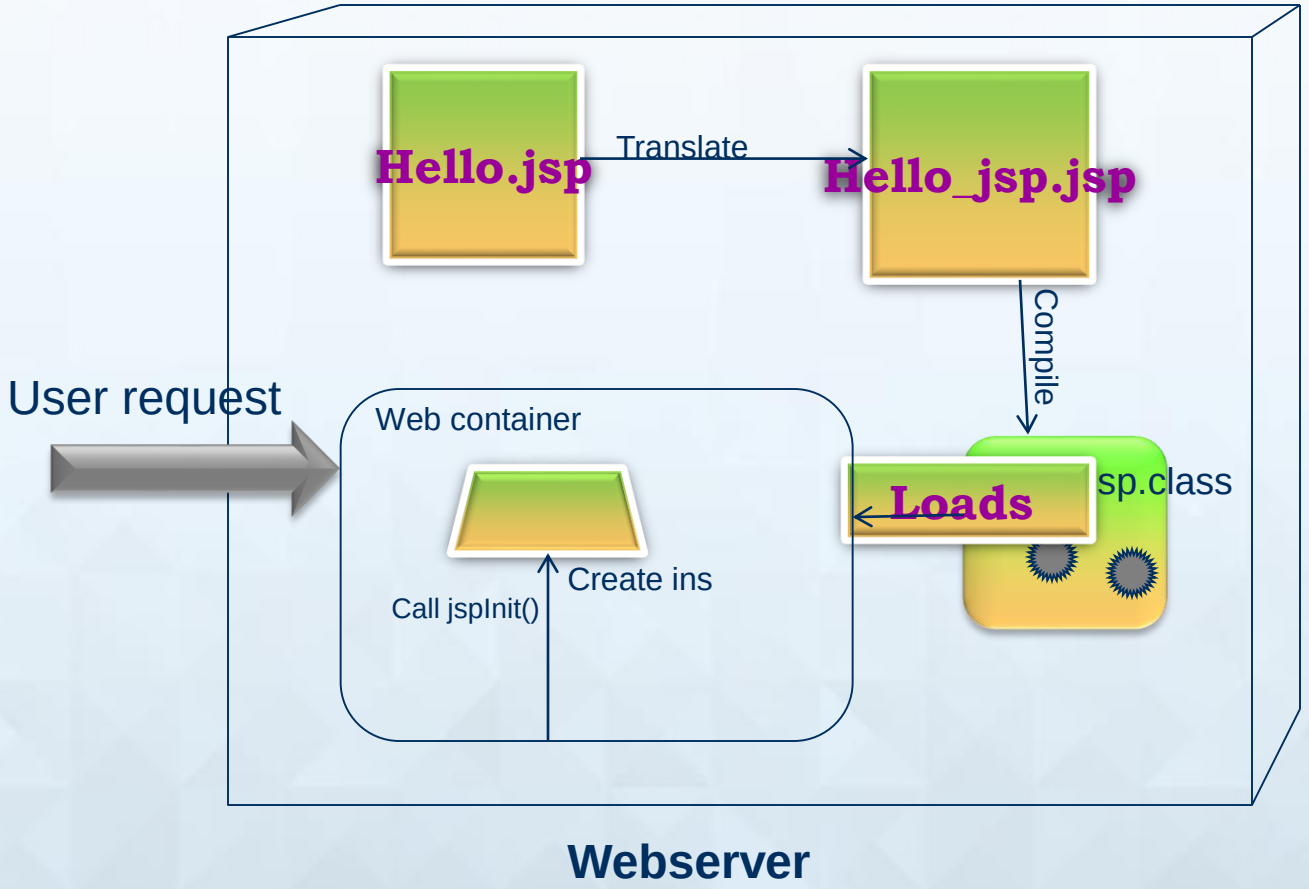
7. Call the jspdestroy method.

JSP LIFE Cycle

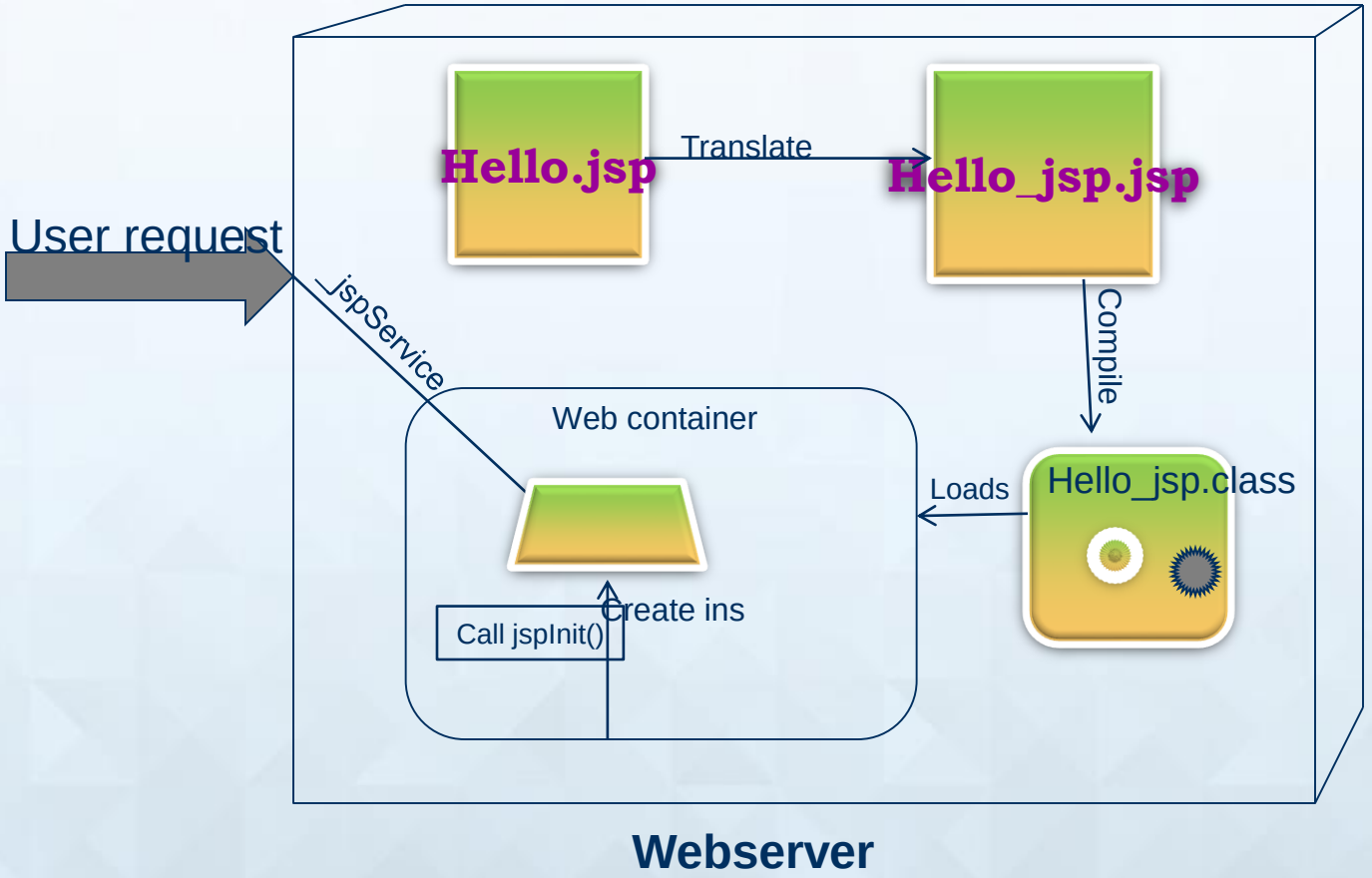


JSP API

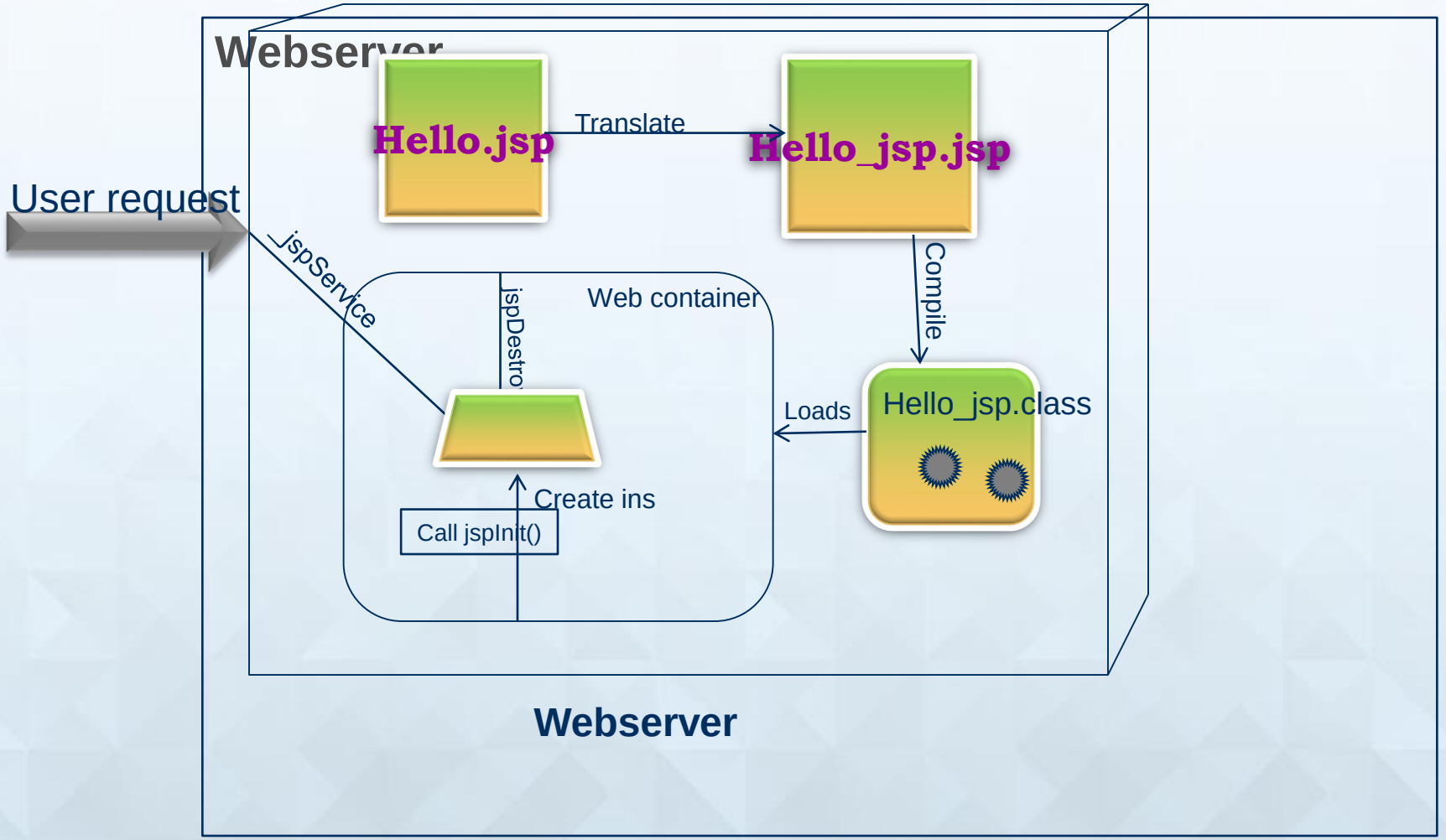
Hypertext Transfer Protocol



Hypertext Transfer Protocol



Hypertext Transfer Protocol



Scripting Elements in JSP

There are five types of scripting elements:

Scripting Element	Scripting Syntax
Comment	<%-- comment --%>
Directive	<%@ directive %>
Declaration	<%! decl %>
Scriplet	<% code %>
Expression	<%= expr %>

Directive and Declarative Tag

Directive Tag

A directive tag affects the JSP page translation phase.

```
<%@ page session=”false” %>
<%@ include file=”incl/copyright.html” %>
```

Declaration Tag

A declaration tag lets the JSP page developer include declarations at the class-level.

```
<%! public static final String DEFAULT_NAME = “World”; %>
<%! public String getName(HttpServletRequest request)
{
return request.getParameter(“name”);
}
%>
```


Scriptlet Tag

Scriptlet Tag

A scriptlet tag lets the JSP page developer include arbitrary Java technology code in the _jspService method.

```
<% int i = 0; %>
<% if ( i > 10 )
 {
%>
I is a big number.
<%    } else { %>
I is a small number
<%   }   %>
```


Expression Tag

Expression Tag

An expression tag encapsulates a Java technology runtime expression, the value of which is sent to the HTTP response stream.

<B>Ten is <%= (2 * 5) %></B>
Thank you, <I><%= name %></I>, for registering for the soccer league.

The current day and time is: <%= new java.util.Date() %>

Implicit Variables

These variables are predefined in the _jspService method.

Variable Name	Description
request	The HttpServletRequest object associated with the Request
response	The HttpServletResponse object associated with the response that is sent back to the browser.
out	The JspWriter object associated with the output stream of the response.
session	The HttpSession object associated with the session for the given user of the request. This variable is only meaningful if the JSP page is participating in an HTTP session.

Implicit Variables

Variable Name	Description
Application	The ServletContext object for the web application.
config	The ServletConfig object associated with the servlet for this JSP page.
pageContext	The pageContext object encapsulates the environment of a single request for this JSP page.
page	The page variable is equivalent to the this variable in the Java programming language.
exception	The Throwable object that was thrown by some other JSP page. This variable is only available in a JSP error page.

Page Directive

- The page directive is used to modify the overall translation of the JSP page.

- You can have more than one page directive, but can only declare any given attribute once (the import attribute is the one exception).

- You can place a page directive anywhere in the JSP file. It is a good practice to make the page directive the first statement in the JSP file.

- The page directive defines a number of page-dependent properties and communicates these to the web container at translation time.

Page Directive

Attribute	Use
language	This tells the server that the page is using the java language. Current JSP specification supports only java language. Example: <%@page language="java" %>
extends	Defines the (fully-qualified) class name of the superclass of the servlet class that is generated from this JSP page. Do not use this attribute. Example: <%@page language="java" import="java.sql.*,mypackage.myclass" %>
buffer	Defines the size of the buffer used in the output stream (a JspWriter object). The value is either none or *N* kb.The default buffer size is 8 KB or greater. For example: buffer=”8kb” or buffer=”none”
Autoflush	Defines whether the buffer output is flushed automatically when the buffer is filled or whether an exception is thrown. The value is either true (automatically flush) or false (throw an exception). The default is true.

Page Directive

Attribute	Use
Session	Defines whether the JSP page is participating in an HTTP session. The value can be either true (the default) or false. Example: <%@page language="java" session="true" %>
Import	Defines the set of classes and packages that must be imported in the servlet class definition. The value of this attribute is a comma-delimited list of fully-qualified class names or packages.(ex : import=”java.sql.Date,java.util.*,java. Text.*”)
isThreadSafe	Allows the JSP page developer to declare whether or not the JSP page is thread-safe.
Info	Defines an informational string about the JSP page. contentType Example <%@ info=“This is my first page” %>
contentType	Defines the MIME type of the output stream. The default is text/html. Example : : <%@page language="java" session="true" contentType="text/html;charset=ISO-8859-1" %>

Page Directive

Attribute	Use
pageEncoding	Defines the character encoding of the output stream. The default is ISO-8859-1.
isELIgnored	Specifies whether EL elements are ignored on the page. The value is either true or false (default). If set to true, EL on the page is not evaluated.
isErrorPage	Defines that the JSP page has been designed to be the target of another JSP page's errorPage attribute. <%@page isErrorPage=true %>
errorPage	errorPage is used to handle the un-handled exceptions in the page. Example: <%@page language="java" session="true" errorPage="error.jsp" %>

Need for Tags - jsp

- Tags takes high priority then script let for code standardization.
- The mixing of scriptlet and HTML code is also hard for computers to read.
- By using the tags we can separate the business logic and the presentation logic seperatly

Action Tags in JSP

- The action tags basically are used to control the flow between pages and to use Java Bean.
- Jsp action tags used to reduce the java coading in jsp page
- Jsp action tags are as follows:

jsp:forward
jsp:include
jsp:useBean
jsp:setProperty
jsp:getProperty
jsp:plugin
jsp:param
jsp:fallback

Action Tags in JSP

```
<jsp:forward page="relativeURL | <%= expression %>">
<jsp:param name="parametername" value="parametervalue | <%=expre
ssion%>" />
</jsp:forward>
```

```
<html>
<body>
<h2>this is index page</h2>

<jsp:forward page="printdate.jsp" >
<jsp:param name="name" value="javatpoint.com" />
</jsp:forward>

</body>
</html>
```


Action Tags in JSP

```
<jsp:include page="relativeURL | <%= expression %>" />
```

```
<html>
<body>
<h2>this is index page</h2>

<jsp:include page="printdate.jsp" />

<h2>end section of index page</h2>
</body>
</html>
```


Action Tags in JSP

```
<jsp:useBean id= "instanceName" scope= "page | request | session | appli
cation"
class= "packageName.className" type= "packageName.className"
beanName="packageName.className | <%= expression >" >
</jsp:useBean>
```

```
<jsp:useBean id="obj" class="com.javatpoint.Calculator"/>

<%
int m=obj.cube(5);
out.print("cube of 5 is "+m);
%>
```


Action Tags in JSP

```
<jsp:setProperty name="instanceOfBean" property= "*"   |
property="propertyName" param="parameterName"  |
property="propertyName" value="{ string | <%= expression %>}"
/>
```

```
<jsp:setProperty name="bean" property="username" />
<jsp:setProperty name="bean" property="username" value="Kumar" />
                                    or
<jsp:setProperty property="*" name="userinfo"/>
```


Action Tags in JSP

```
<jsp:getProperty property="propertyname" name="userinfo"/>
```

```
<jsp:getProperty property="age" name="userinfo" /><br>
<jsp:getProperty property="username" name="userinfo"/><br>
<jsp:getProperty property="password" name="userinfo"/><br>
```

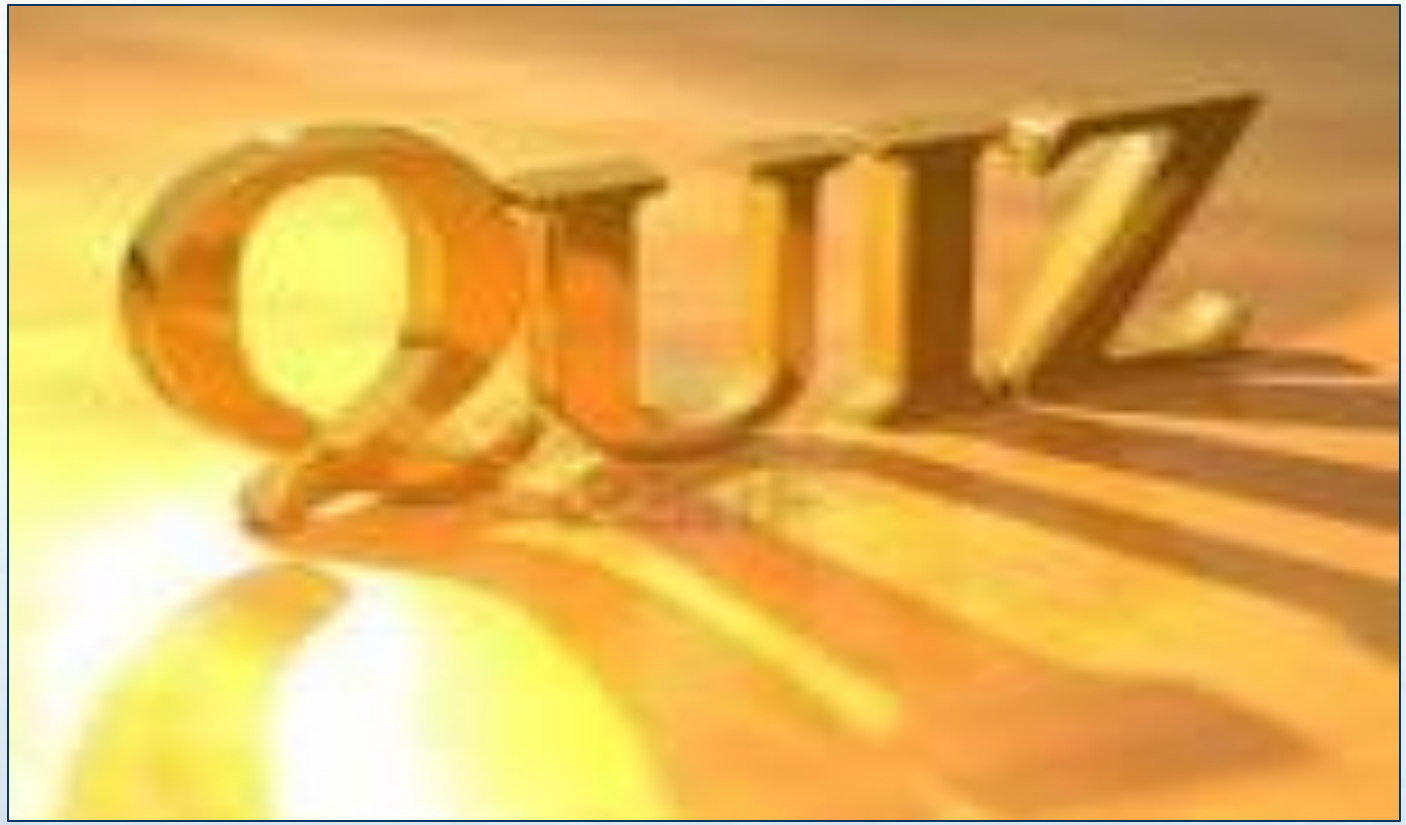

Action Tags in JSP

```
<jsp:plugin
    type="applet"
    code="net.codejava.applet.MyApplet.class"
    codebase="html">

    <jsp:params>
        <jsp:param name="username" value="Tom" />
    </jsp:params>

    <jsp:fallback>
        <p>Could not load applet!</p>
    </jsp:fallback>

</jsp:plugin>
```

Quiz

1. Choose the statement that best describes the relationship between JSP and servlets:

   A. Servlets are built on JSP semantics and all servlets are compiled to JSP pages for runtime usage.
   B. JSP and servlets are unrelated technologies.
   C. Servlets and JSP are competing technologies for handling web requests. Servlets are being superseded by JSP, which is preferred. The two technologies are not useful in combination.
   D. JSPs are built on servlet semantics and all JSPs are compiled to servlets for runtime usage.

Quiz

2. What alternatives exist to embedding Java code directly within the HTML markup of your JSP page?

A. Moving the code into your session manager.
B. Moving the code into scriptlets.
C. Moving the code into JavaBeans and servlets.
D. Moving the code into a transaction manager.

Quiz

3) javaserver pages are processed by

a) Jsp container
b) The asp.dll component
c) IIS
d) Web server

4) What is the output of the following code

```
<% session.setAttribute("name","John");%>
<%=session.getAttribute("name")%>
```

a) John
b)null

5)which one the following is a valid argument for a jsp page directive

a)caching="sizeb|none"
b)isThreadSafe="yes|no"
c)importer="package.class"
d)contentType="text/html"

Quiz

6)JSP are processed by software on the ?

a)server
b)client

7) The method _jspService of HttpJspPage should not be overriden by a JSp author

a)False
b)True

8)which of the following are legal attributes of a page directive

a)include
b)scope
c)errorpage
d)exception

Quiz

9) The methods JspInit and Destroy can be override by developer

a)true

b)False

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