



**4Th
Year**

Web Services and Security

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Create Dynamic web Application

What is JSP?

- **JSP technology is used to create web application just like Servlet technology. It can be thought of as an extension to servlet because it provides more functionality than servlet such as expression language etc.**
 - A JSP page consists of HTML tags and JSP tags. The jsp pages are easier to maintain than servlet because we can separate designing and development.

Advantage of JSP over Servlet

- **Extension to Servlet**

- JSP technology is the extension to servlet technology. We can use all the features of servlet in JSP. In addition to, we can use implicit objects, predefined tags, expression language and Custom tags in JSP, that makes JSP development easy.

Advantage of JSP over Servlet

- **Easy to maintain**

- JSP can be easily managed because we can easily separate our business logic with presentation logic. In servlet technology, we mix our business logic with the presentation logic.

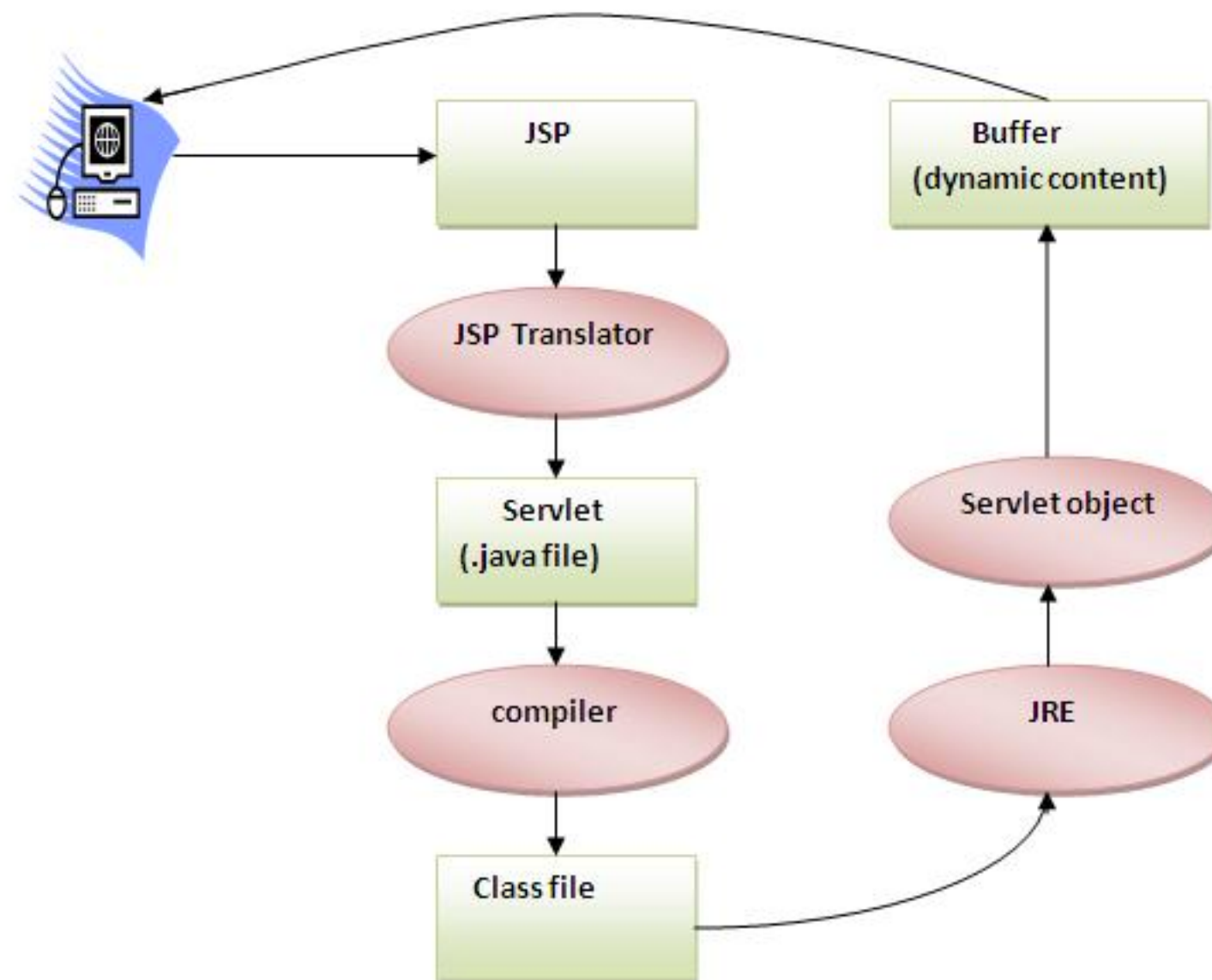
- **Fast Development**

- If JSP page is modified, we don't need to recompile and redeploy the project. The servlet code needs to be updated and recompiled if we have to change the look and feel of the application.

Life cycle of a JSP Page

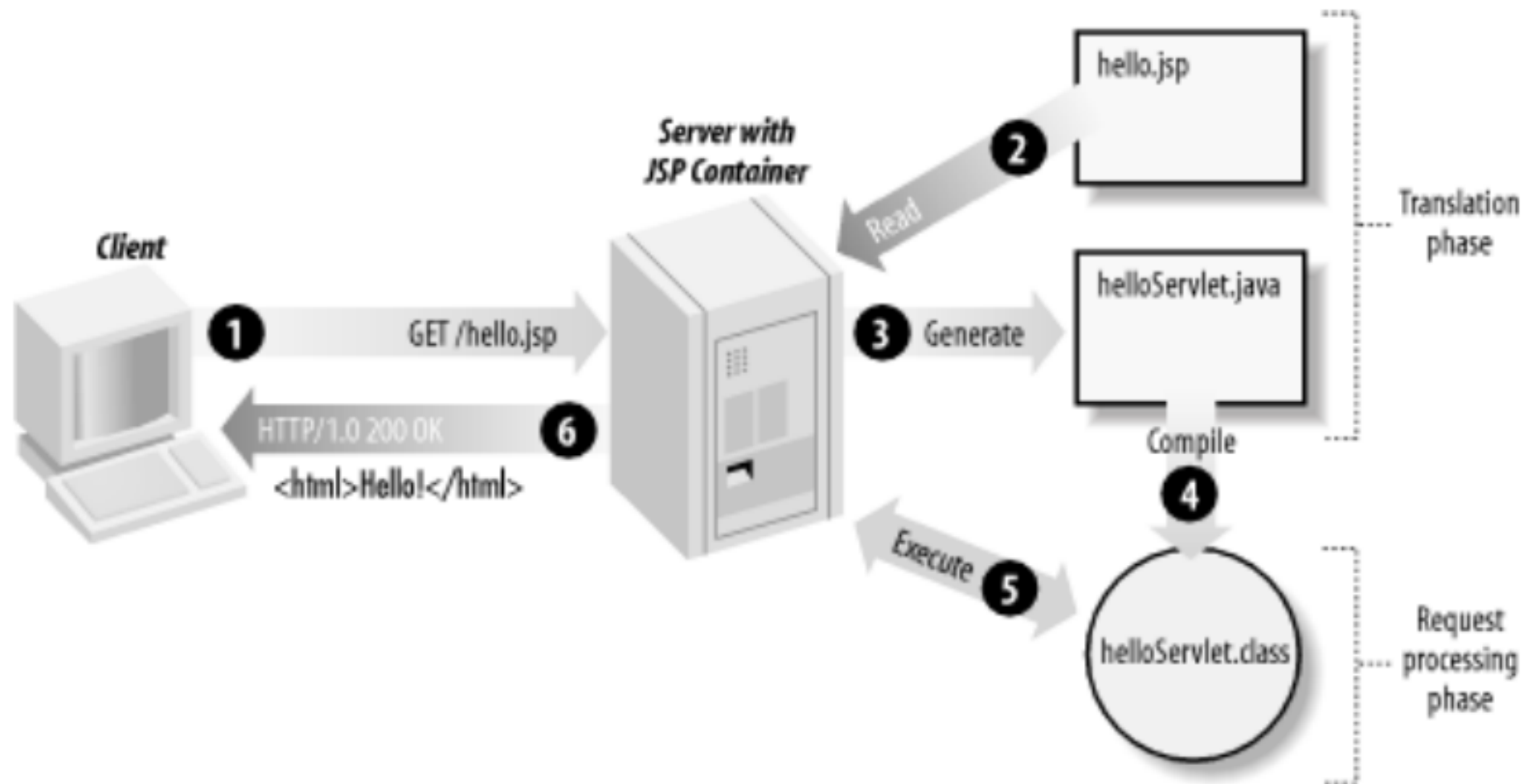
1. Translation of JSP Page.
2. Compilation of JSP Page.
3. Classloading (class file is loaded by the classloader).
4. Instantiation (Object of the Generated Servlet is created).
5. Initialization (`jspInit()` method is invoked by the container).
6. Request processing (`_jspService()` method is invoked by the container).
7. Destroy (`jspDestroy()` method is invoked by the container).

Life cycle of a JSP Page



Life cycle of a JSP Page

- JSP page translation and processing phases



The JSP APIs

- **The JSP API consists of two packages:**

- **javax.servlet.jsp package**

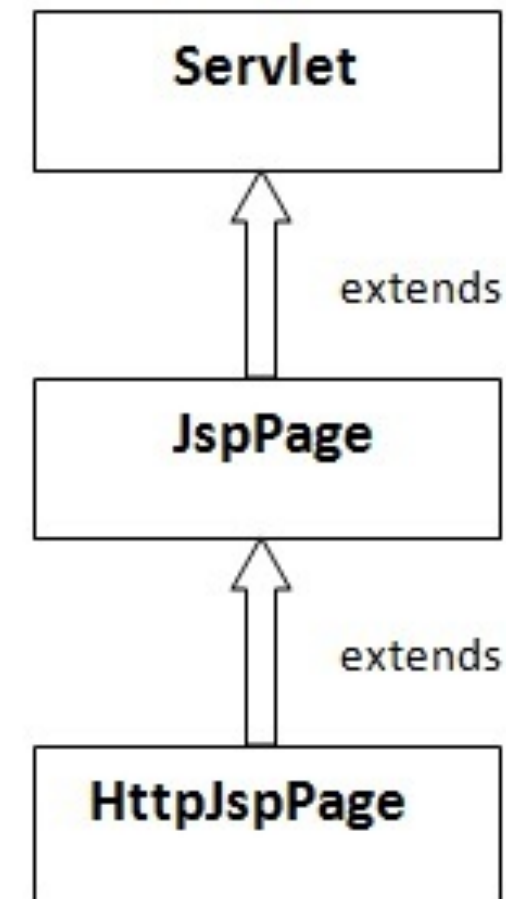
The javax.servlet.jsp package has two interfaces and classes:

- 1.JspPage
- 2.HttpJspPage

- **javax.servlet.jsp.tagext**

The JspPage interface

- According to the JSP specification, all the generated servlet classes must implement the JspPage interface. It extends the Servlet interface.



JSP Scriptlet tag (Scripting elements)

- In JSP, java code can be written inside the jsp page using the scriptlet tag:

- Scripting elements

- Scriptlet tag.
- Expression Tag
- Declaration Tag

JSP scriptlet tag

- A scriptlet tag is used to execute java source code in JSP. Syntax is as follows:

```
<% Java Source Code %>
```

```
<html>
```

```
<body>
```

```
<% out.print("welcome to jsp"); %>
```

```
</body>
```

```
</html>
```

JSP expression tag

- The code placed within JSP expression tag is written to the output stream of the response. So you need not write `out.print()` to write data. It is mainly used to print the values of variable or method

`<% = Statement %>`

```
<html>
```

```
<body>
```

```
<%= "welcome to jsp" %>
```

```
</body>
```

```
</html>
```

JSP Declaration Tag

- The JSP declaration tag is used to declare fields and methods.

<%! Field or method declaration %>

```
<html>
<body>
<%! int data=50; %>
<%= "Value of the variable is:"+data %>
</body>
</html>
```

JSP scriptlet tag VS declaration tag

Jsp Scriptlet Tag	Jsp Declaration Tag
The jsp scriptlet tag can only declare variables not methods.	The jsp declaration tag can declare variables as well as methods.
The declaration of scriptlet tag is placed inside the <code>_jspService()</code> method.	The declaration of jsp declaration tag is placed outside the <code>_jspService()</code> method.

```

<html>
<body>
<%! int data=50; %>
<%= "Value of the variable is:"+data %>
</body>
</html>

```

```

<html>
<body>
<%!
int cube(int n){
return n*n*n*;
}
%>
<%= "Cube of 3 is:"+cube(3) %>
</body>
</html>

```


JSP Action Tags

- There are many JSP action tags or elements. Each JSP action tag is used to perform some specific tasks.
- The action tags are used to control the flow between pages and to use Java Bean.

JSP Action Tags

JSP Action Tags	Description
jsp:forward	forwards the request and response to another resource.
jsp:include	includes another resource.
jsp:useBean	creates or locates bean object.
jsp:setProperty	sets the value of property in bean object.
jsp:getProperty	prints the value of property of the bean.
jsp:plugin	embeds another components such as applet.
jsp:param	sets the parameter value. It is used in forward and include mostly.
jsp:fallback	can be used to print the message if plugin is working. It is used in jsp:plugin.

Used for Java Beans

JSP : forward

The `jsp:forward` action tag is used to forward the request to another resource it may be jsp, html or another resource.

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

Without
parameters

With
parameters

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

```
<jsp:param name="parametername" value="parametervalue | <%=expression%>" />
```

```
</jsp:forward>
```

