

# Web Development with Jakarta Server Pages and Servlets

## Session: 5

# Jakarta Server Pages



# Objectives

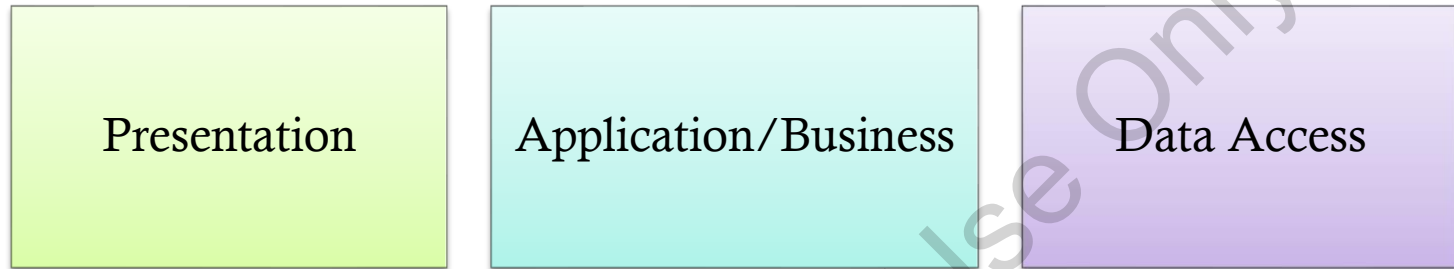
- ❖ Define Jakarta Server Pages (JSP)
- ❖ Outline the differences between servlet and JSP
- ❖ Contrast Jakarta Server Pages against Java Server Pages
- ❖ List the benefits of JSP
- ❖ Identify the situations where to use JSP and servlets
- ❖ Explain JSP architecture and lifecycle
- ❖ Explain scriptlet elements in JSP
- ❖ List and explain the use of directives in JSP
- ❖ Describe changes in JSP 3.0

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# Introduction

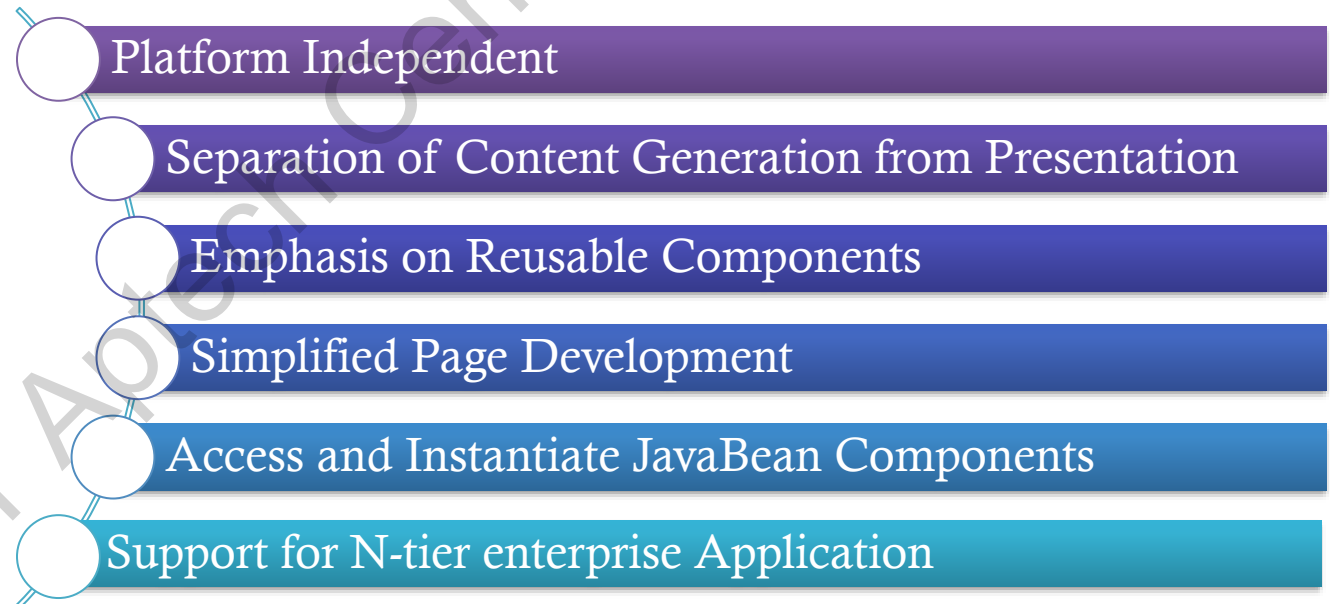
JSP	Quick file modification
	Accepts HTTP request
	Cannot manage massive data processing
	Slow execution
	Separates business logic and presentation logic.
	Does not allow overriding the <code>service()</code> method
	Presents output in MVC architecture
Servlet	Delayed file modification
	Accepts requests from any protocols, including HTTP
	Manages massive data processing
	Faster execution
	Implements both logic in a single servlet file
	Allows overriding the <code>service()</code> method
	Works as a controller in MVC architecture

# JSP Page

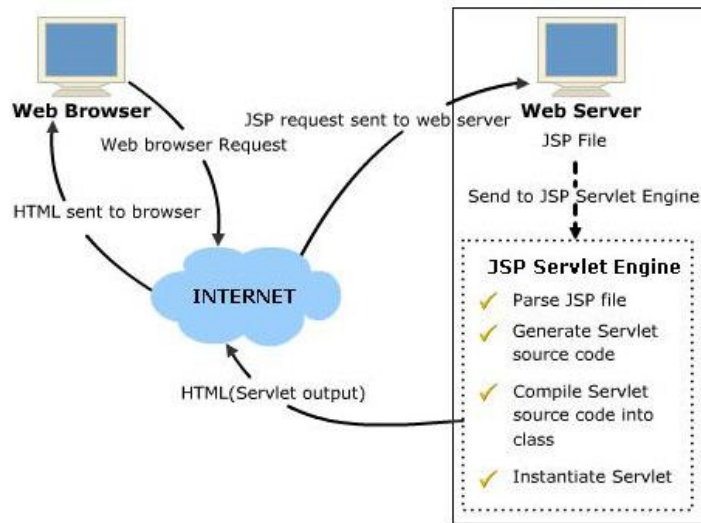


Web Application Layers

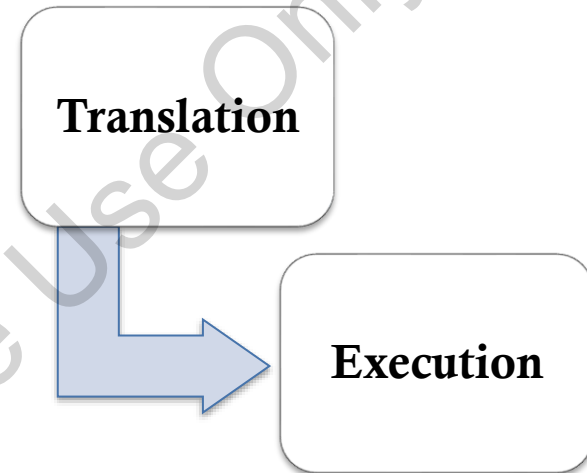
## Benefits of JSP



# JSP Architecture and Lifecycle



JSP Architecture



Lifecycle Phases of JSP

Lifecycle methods

`jspInit()`

`jspService()`

`jspDestroy()`

# Elements of a JSP Page

## Scripting Tags

- `<%= Expression %>`

## Scriptlets

- `<%= code fragment %>`

## Declarations

- `<%! declaration code %>`

## Comments

- `<%-- a JSP comment --%>`

# Directive Tags

Three directives of JSP are:

page

Controls page structure.

include

Inserts content at runtime in a JSP page of another resource.

taglib

Allows JSP page to create custom tags.

```
<html>
<head><title>Test for include directive </title></head>
<body bgcolor="white">
<font color="red">
Today's date is :
<% include file="date.jsp" %>
</font>
</body>
</html>
```

include Directive

```
<% taglib uri="tags" prefix="mt" %>
<HTML>
  <HEAD>
    <TITLE>Hello World</TITLE>
  </HEAD>
  <BODY BGCOLOR="#FFFFFF">
    <HR>
    <mt:helloWorld/>
    <HR>
  </BODY>
</HTML>
```

taglib Directive

# JSP 3.0 New Features

Major update in JSP 3.0



Renaming of `javax.servlet.jsp` to  
`Jakarta.servlet.jsp` package.



# Summary

- ❖ JSP technology is used for developing dynamic Web sites and provides server-side scripting support for creating Web applications.
- ❖ A JSP page is a mixture of standard HTML tags, Web page content, and dynamic content that is specified using JSP elements.
- ❖ The JSP elements are expressions, scriptlets, comments, declarations, directives, and actions.
- ❖ Directives are used to specify the structure of the resulting servlet and actions are JSP tags that transfer control to other server objects or perform operations on other objects.
- ❖ A JSP scriptlet is used to embed Java code within an HTML code.
- ❖ Servlets run faster than JSP since JSP takes time to compile and convert the program into servlets.
- ❖ The `page` directive is used to set the page attributes, such as the language to be used and encoding format.
- ❖ The `include` directive is used to insert a file referenced in the directive into the JSP page.
- ❖ The `taglib` directive links the JSP page to an XML document that describes a set of custom JSP tags and determines which tag handler class can implement the action of each tag.