JAVA SERVER PAGES
PART-1

JSP:

JSP stands for Java Server Pages.

JSP is a specification for developing applications with Java programming language.

JSP Engine:

JSP Engine is a piece of software and converts JSP into a Servlet

There are three phases in JSP Architecture:

1) Conversion   2) Compilation   3)Execution

1) JSP converted into a Servlet by JSP Engine.

2) Converted Servlet compiled by Java Compiler

3) Servlet Excecuted by Java Runtime Environment and output captured like HTML.

4) Jasper is a JSP Engine name in Tomcat Server

5) Catalina is a Web Container name in Tomcat Server

JSP Benefits:

1) Content and display logic separated
2) Simplifying web application development by using JSP with Java beans and custom tags.
3) Recompiles automatically whenever changes are made in JSP

4) Easier to write and develop web applications

Converted Servlet Life Cycle Methods:

1) jspInit()   2)_jspService()   3)jspDestroy()

jspInit():

It is called by web container whenever first request comes to a servlet.

_jspService():

It is called by web container for every request.

jspDestroy():

It is called by web container whenever web application is undeployed from server or server shuts down.

JSP Elements:

JSP elements are used to write JSP programs. JSP Elements are divided into three categories.

1) Scripting Elements

2) Directives

3) Actions

Scripting Elements:

There are four scripting elements in JSP:

1) Scriptlets   2) Declarations 3)Expressions   4) Comments

1) Scriptlets:

Syntax:

<% ……………. %>

     (or)

<jsp:scriptlet>

=========== => Java Code

</jsp:scriptlet>

2) Declarations:

Syntax:

<%! ……………. %>

     (or)

<jsp:declaration>

=========== => Java Code

</jsp:declaration>

3) Expressions:

Syntax:

<%= ……………. %>

     (or)

<jsp:expression>

============ => Java Code

</jsp:expression>

4) Comments:

Syntax:

<%-- …………. --%>

JSP Implicit Object References:

There are 9 implicit object references are present in JSP. They are ready to use.

1) "out" is an object reference of JspWriter

2) "request" is an object reference of HttpServletRequest

3) "response" is an object reference of HttpServletResponse

4) "config" is an object reference of ServletConfig

5) "application" is an object reference of ServletContext

6) "page" is an object reference of Object

7) "pageContext" is an object reference of PageContext

8) "session" is an object reference of HttpSession

9) "exception" is an object reference of Throwable

JSP Programs:

1) JSP program to display welcome message:

<% out.println("Welcome to JSP"); %>

2) JSP program using HTML:

<html>

<body bgcolor=red text=yellow>

```
<h1><% out.println("Welcome"); %>

</h1>

</body>

</html>
```

3) JSP program to count the no. of views:

```
<html>

<body bgcolor=green text=yellow>

<h1><%! int count=0; %>

This page has been accessed <%= ++count %> times

</h1>

</body>

</html>
```

4) Program to display system time:

```
<html>

<body bgcolor=green text=yellow>

<h1>

<% java.util.Date d=new java.util.Date(); %>

<%= d.getHours() %>:<%= d.getMinutes() %>:

<%= d.getSeconds() %>

</h1>

</body>

</html>
```

5) Program to display multiplication table:

```
<html>

<body bgcolor=red text=yellow>

<table border=20>

<% for(int i=1;i<=100;i++) { %>

<tr>

<td> 5 </td>

<td> x </td>

<td><%= i %></td>

<td> = </td>

<td><%= 5*i %></td>

</tr>

<% } %>

</table>

</body>

</html>
```

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