

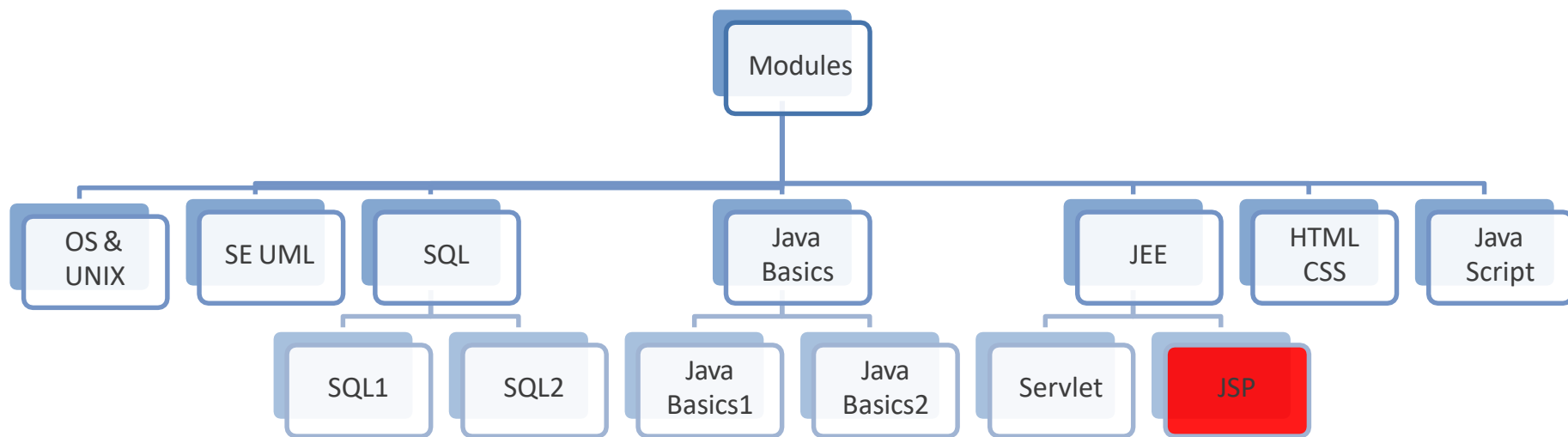
JSP (Java Server Pages)

Module Overview

Purpose:

The following modules are identified to build the basic IT skills and acquaint you with the technology basics.

The current module (highlighted in red) is contributing on Basics of Java Programming.



*** Recommended duration: 12 hours**

Module Objectives

By the end of this module, you will be able to:

- Understand JSP
- Develop JSP using different building blocks
- Understand Scripting elements, implicit objects and directives
- Use standard action tags and custom tags
- Use JSTL library with JSP

JSP(Java Server Pages) - Introduction to JSP

- Java Server Pages (JSP) is a technology based on the Java language and enables the development of dynamic web sites. JSP was developed by Sun Microsystems to allow server side development. JSP files are HTML files with special Tags containing Java source code that provide the dynamic content.

Why use JSP?

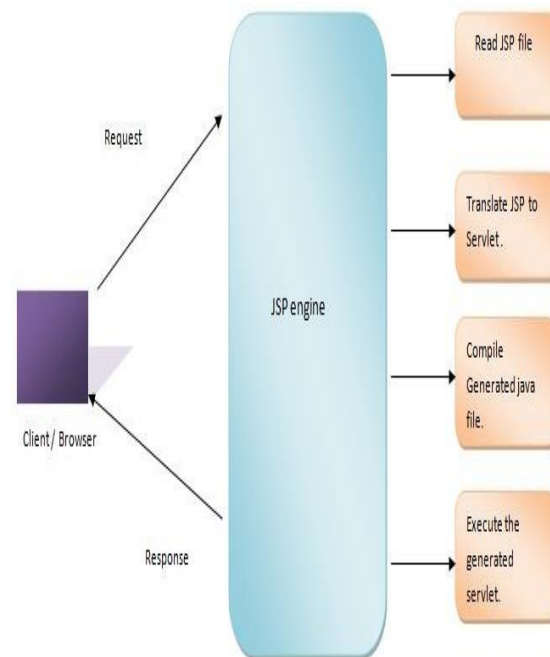
- JSP is easy to learn and allows developers to quickly produce web sites and applications in an open and standard way.
- JSP is based on Java and having advantages of Java.
- Component reuse by using Java beans and EJB.
- Segregation of presentation and business logic

References

- https://www.tutorialspoint.com/jsp/jsp_overview.htm
- <https://www.javatpoint.com/jsp-tutorial>

JSP(Java Server Pages) - JSP architecture

- JSPs are built on top of SUN Microsystems' servlet technology.
- JSPs are essential in HTML page with special JSP tags embedded. These JSP tags can contain Java code.
- The JSP engine parses the .jsp and creates a Java servlet source file. It then compiles the source file into a class file, this is done the first time .
- JSP is probably slower the first time it is accessed. Any time after this the special compiled servlet is executed and is therefore returns faster.



References

- https://www.tutorialspoint.com/jsp/jsp_architecture.htm
- <https://www.javatpoint.com/jsp-tutorial>

JSP(Java Server Pages) - JSP – Scripting Elements

Scripting Elements

- Declaration
- Expression
- Scriptlet

Scriptlet tag (<% ... %>) :

Between <% and %> tags, any valid Java code is called a Scriptlet. This code can access any variable or bean declared.

Declaration tag (<%! %>) :

This tag allows the developer to embed instance and static variable and method declarations.

Expression tag (<%= %>) :

This tag allows the developer to embed any Java expression and is short for out.println().

References

- https://www.tutorialspoint.com/jsp/jsp_syntax.htm
- <https://www.javatpoint.com/jsp-scriptlet-tag>

JSP(Java Server Pages) - JSP – Implicit Objects

Variable	Type Of
Request	Javax.servlet.http.HttpServletRequest
Response	Javax.servlet.http.HttpServletResponse
Out	Javax.servlet.jsp.JspWriter
Session	Javax.servlet.http.HttpSession
PageContext	Javax.servlvet.jsp.PageContext
Application	Javax.servlet.http.ServletContext
Config	Javax.servlet.http.ServletConfig
Page	Java.lang.Object

References

- https://www.tutorialspoint.com/jsp/jsp_implicit_objects.htm
- <https://www.javatpoint.com/jsp-implicit-objects>

JSP(Java Server Pages) - JSP – Action tags

The actions use constructs in XML syntax to control the behavior of the servlet engine. You can dynamically insert a file, reuse JavaBeans components, forward the user to another page, or generate HTML for the Java plugin.

Few Action tags available in jsp:

```
<jsp: useBean>  
<jsp: setProperty>  
<jsp: getProperty>  
<jsp: forward>  
<jsp: include>
```

References

- https://www.tutorialspoint.com/jsp/jsp_actions.htm
- <https://www.javatpoint.com/jsp-action-tags-forward-action>

JSP(Java Server Pages) - JSP – Custom tags

A custom tag is a user-defined JSP language element. When a JSP page containing a custom tag is translated into a servlet, the tag is converted to operations on an object called a tag handler. The Web container then invokes those operations when the JSP page's servlet is executed.

Custom tags have a rich set of features. They can:

- Be customized via attributes passed from the calling page
- Access all the objects available to JSP pages
- Modify the response generated by the calling page

References

- https://www.tutorialspoint.com/jsp/jsp_custom_tags.htm
- <https://www.javatpoint.com/custom-tags>

JSP(Java Server Pages) - JSTL – (Jsp Standard Tag Library)

- **JSTL (JSP Standard Tag Libraries)** is a collection of JSP custom tags developed by Java Community Process, www.jcp.org. The reference implementation is developed by the Jakarta project, jakarta.apache.org.
- JSTL allows you to program your JSP pages using tags, rather than the scriptlet code that most JSP programmers are already accustomed to. JSTL can do nearly everything that regular JSP scriptlet code can do.
- The JSTL tags can be classified according to their functions into following JSTL tag library groups that can be used when creating a JSP page.
 - Core Tags
 - Formatting tags
 - SQL tags
 - XML tags
 - JSTL Functions

References

- <https://www.javatpoint.com/jstl>
- https://www.tutorialspoint.com/jsp/jsp_standard_tag_library.htm

Additional References

The last discussed topics aimed at to gain the concept knowledge and the practical contexts to apply the knowledge.

If you want to explore more and build the expertise level, refer to below links and books:

Links :-

<https://www.guru99.com/jsp-tutorial.html>

<http://www.jsptut.com/>

Books :-

- Jsp 2.0: The Complete Reference
- Head First Servlets and JSP

Self Check?

Instructions to write Self Evaluation Sheet:

Open the excel sheet, refer JSP sheet, write down the solutions for all questions, save a local copy in your machine.

Lab Assignment

- Refer Assignment Document to complete the tasks on the required timeline
- You are required to submit the Solutions for the given assignment and refer the Participant guide to get know the submission procedure.

Module Summary

Now that you have completed this module, you will be able to:

- Develop JSP using different building blocks
- Understand Scripting elements, implicit objects and directives
- Use standard action tags and custom tags
- Use JSTL library with Jsp

Thank you!