Directives
========

1. page directive
2. include directive
3. taglib directive

taglib directive
============

=> We can use taglib directive to make custom tags available to our jsp page.
=> <%@ taglib uri = ''Location of TLD file" prefix=''[prefixName for a tag]" %>
=> taglib directive contains 2 attributes prefix and uri.
=> uri represents the location of TLD file which inturn represents the TagHandler class.

eg::In SpringMVC to design a view using jsp we prefer working with form tag library given by pivotal team

index.jsp
=======

```
<%@ taglib  uri ='http://www.springframework.org/tags/form'  prefix='form'%>
<form:form>
      <table>
          <tr>
              <td>First Name:</td>
              <td><form:input path="firstName" /></td>
          </tr>
          <tr>
              <td>Last Name:</td>
              <td><form:input path="lastName" /></td>
          </tr>
          <tr>
              <td colspan="2">
                  <input type="submit" value="Save Changes" />
              </td>
          </tr>
      </table>
</form:form>
```

JSP Scripting Elements
=================

There are 2 types of Scripting elements

a. Traditional Scripting elements.
b. Modern Scripting elements.

Traditional Scripting elements

a. Expression (<%= expression%>)
b. Scriptlet(<% any java code%>)
c. Declarative(<%! any java declarations %>)
d. Comments(<%-- JSP comments --%>)

1. Expression tag

This tag is used to print java expression values to the JSP.
syntax: <%= expression %>

Inside the servlet the code would be replaced as

```
      _ jspService(request,response)
      {
            out.print(expression);
      }
```

index.jsp

```
<h1 style='color:blue;text-align:center;'>Working with Expression tag</h1>
<h1 style='color:green;text-align:center;'>
      Username is :: <%= request.getParameter("username")%><br/>
      Password is :: <%= request.getParameter("password")%><br/>
</h1>
request ===> http://localhost:9999/ThirdApp/index.jsp?
username=sachin&password=tendulkar
```

Conclusions

1. Inside the expression tag, we are not supposed to keep ; symbol,if we keep it would result in 500 server error.

```
      <%=  new java.util.Date(); %>//invalid
```

2. Inside an expression tag we can use method calls also,but void return type method calls are not allowed.

```
      <%= new java.util.ArrayList().size() %>//valid
      <%= new java.util.ArrayList().clear() %>//invalid
```

3. Inside an expression tag space is not allowed between % and = , it would result in 500 server error.

```
      <% =request.getParamter("username") %>//invalid
```

4. Inside an expression tag declaration statements are not allowed.

```
      <%= String name ="dhoni" %>//invalid
```

which of the following are valid java expression?

```
      1. <%= 27 %> //valid
      2. <%= "27" %>//valid
      3. <%= Math.random()%>//valid
      4. <%= 10*20 %>//valid
      5. <%= 10>20 %>//valid
      6. <%= new Student() %>//valid
      7. <%= String name= "Apeksha"%>//invalid
```

Scriptlet tag

We use this tag to write java code inside jsp.

Syntax:

```
            <%
                  Any java code
            %>
```

Java code inside Scriptlet tag will be placed directly inside _ jspService() method of generated servlet.

Every java statement present inside Scriptlet tag should be terminated with ; symobl.

eg:

index.jsp

```
<h1 style='color:blue;text-align:center;'>Working with Scriptlet tag</h1>
<%
      int x =10;
      out.println(x);
%>
request -> http://localhost:9999/ThirdApp/
```

Note: It is not recomended to use Scriptlet tag inside jsp.

Declarative Tag(<%! %>)

We can use Declarative tag to declare instance variables, static block, instance block, methods etc...

Syntax:

```
      <%!
            Any java declarations
      %>
```

Note: Any java declarations written inside declarative tag would be placed directly in the generated servlet but outside _ jspService() method.

index.jsp

```
<h1 style='color:blue;text-align:center;'>Working with Declarative tag</h1>
<%!
      int x =10;
      static int y = 20;
      int[] a = {10,20,30};
      public String m1(){
            System.out.println(a[0]);
            System.out.println(x);
            return "working with Declarative tag";
      }
%>
<%= m1()%>
```

request=> http://localhost:9999/ThirdApp/

index.jsp

```
<%!
      public String m1(){
            int x = 10;
            out.println(x);
            return "working with Declarative tag";
      }
%>
<%= m1()%>
```

request=>http://localhost:9999/ThirdApp/
output: CE: out can't be resolved.

Note: All jsp implicit objects are local to _ jspService() method,but declaration tag code will be placed outside of _ jspService() method.so we can't use jsp implicit objects inside declartion tag.

Where as scriptlet and expression tag code will be placed directly inside _ jspService(),so jsp implicit objects are accessible inside scriptlet and expression tag.

index.jsp

```
<h1 style='color:blue;text-align:center;'>Working with Scripting Elements</h1>
<%!
      java.util.Date d = null;
      String date =null;
%>
<%
      d = new java.util.Date();
      date = d.toString();
%>
<html>
      <head><title>Output</title></head>
      <body bgcolor='lightyellow'>
            <center>
                  <b>
                        <font size='6' color='red'>
                              Today date is <%= date%>
                        </font>
                  </b>
            </center>
      </body>
</html>
```

4. Comments inside JSP

Inside jsp can we write html code(html comments),java code(java comments),jsp code(jsp comments).

1. JSP comments

```
            <%-- jsp comments --%>
```

2. HTML comments

```
            <!-- HTML comments -->
```

3. Java comments

```
            1. // single line comments

            2. /*
                   multiline comments
                */

            3. /**
                   Java documentation comments
                */
```

summary of jsp comments
======================

a. jsp comments

```
            Is it visible in jsp   ==================> yes
            Is it visible in translated servlet =======>  no
            Is it visible in end user response source code ======>  no
```

b. html comments

```
            Is it visible in jsp ==================> yes
            Is it visible in translated servlet ======> yes
            Is it visible in end user response source code =====> yes
```

c. java comments

```
            Is it visible in jsp ==================> yes
            Is it visible in translated servlet ======> yes
            Is it visible in end user response source code=====> no
```

Note: Among expression,scriptlet,declaration and jsp comments, we cannot use one inside another.

ie, nesting of these scripting elements is not possible, if we try to do it would result in 'CompileTimeError'.