Lend a Hand : Step 3 – Deploy and Run

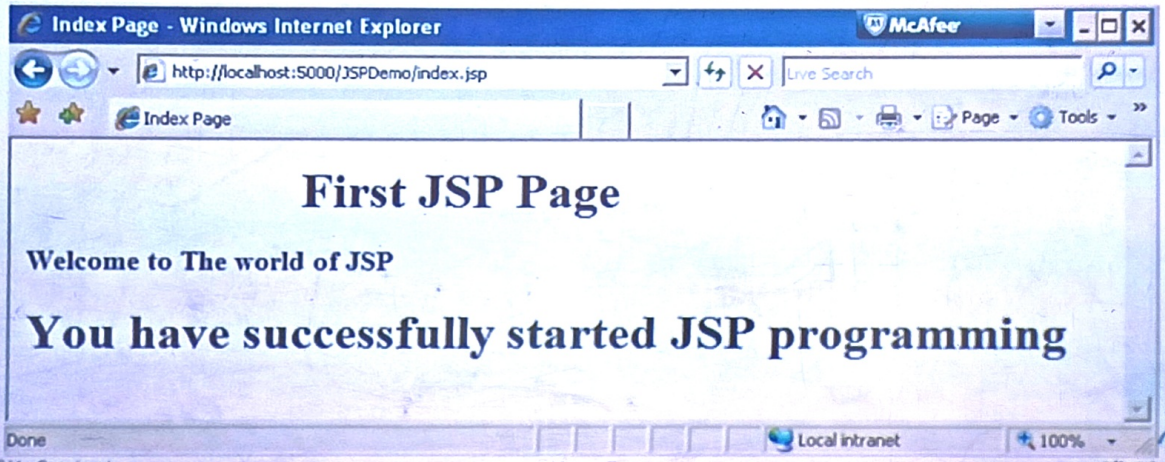
Right click the application and run it using the option

Run As→ Run on Server

Call index.jsp from the browser

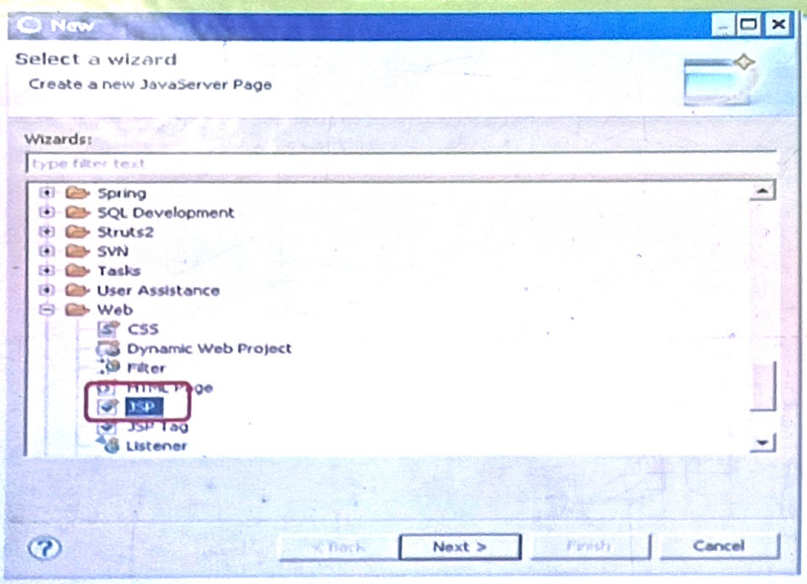
http://localhost:5000/JSPDemo/index.jsp

NOTE: Ensure the port number and context are correct.



Lend a Hand : Step 2 : Create index.jsp

Right click webcontent →Click new → Click other→Click web Select JSP.



Lend a Hand : Code Of index.jsp

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>JspDemo</title>
</head>
<body>
<h1>Jsp Demo Application</h1>
<%=out.print("Welcome to JSP")%>
<h2>You have successfully started learning one of the powerful web
technology in java - JSP</h2>
</body>
</html>
```

Add the highlighted code in the JSP file created.

How to use Expressions ?

Expressions are Embedded in <%= and %> delimiters

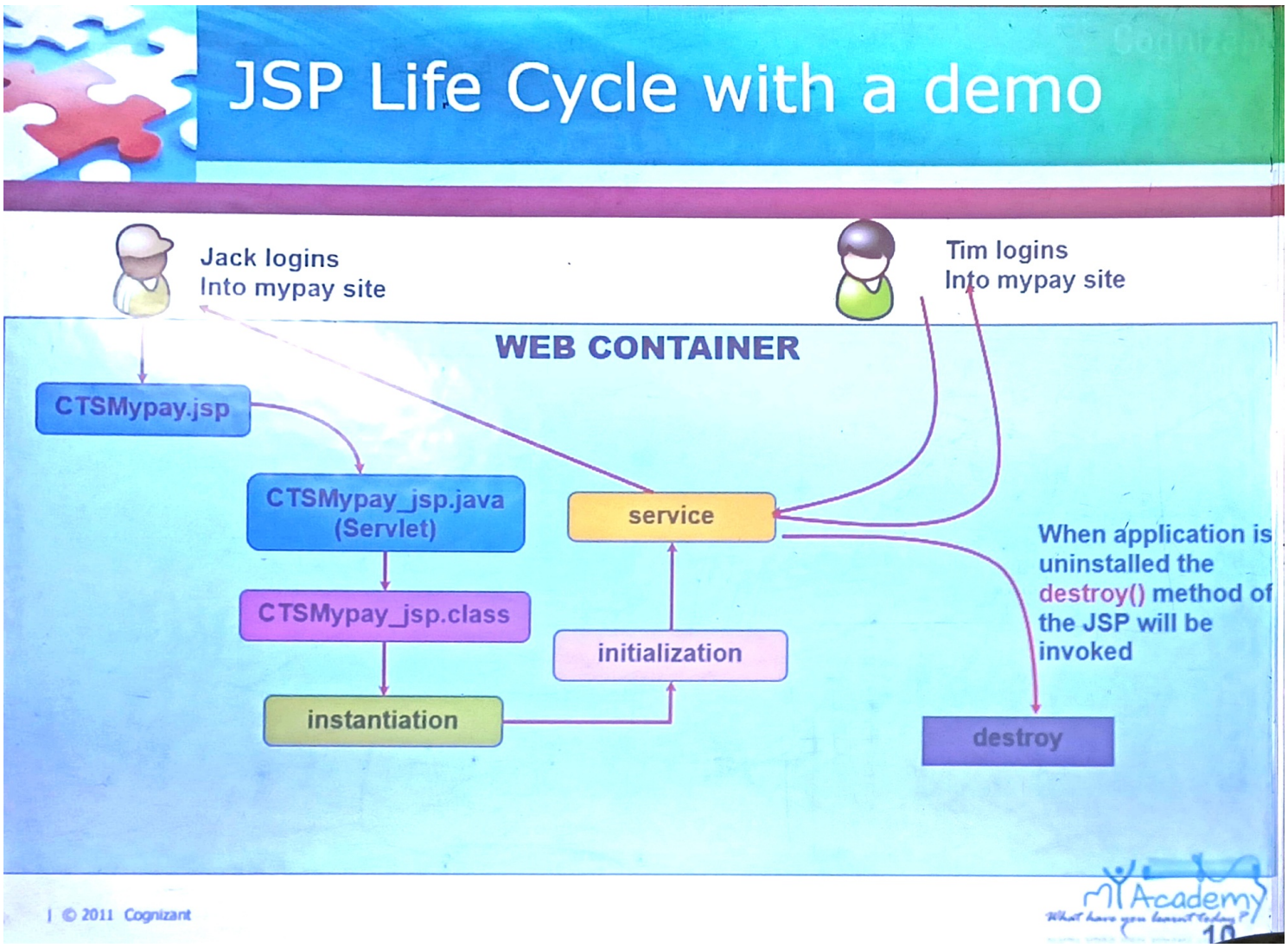
Syntax: <%= expression 1 %>

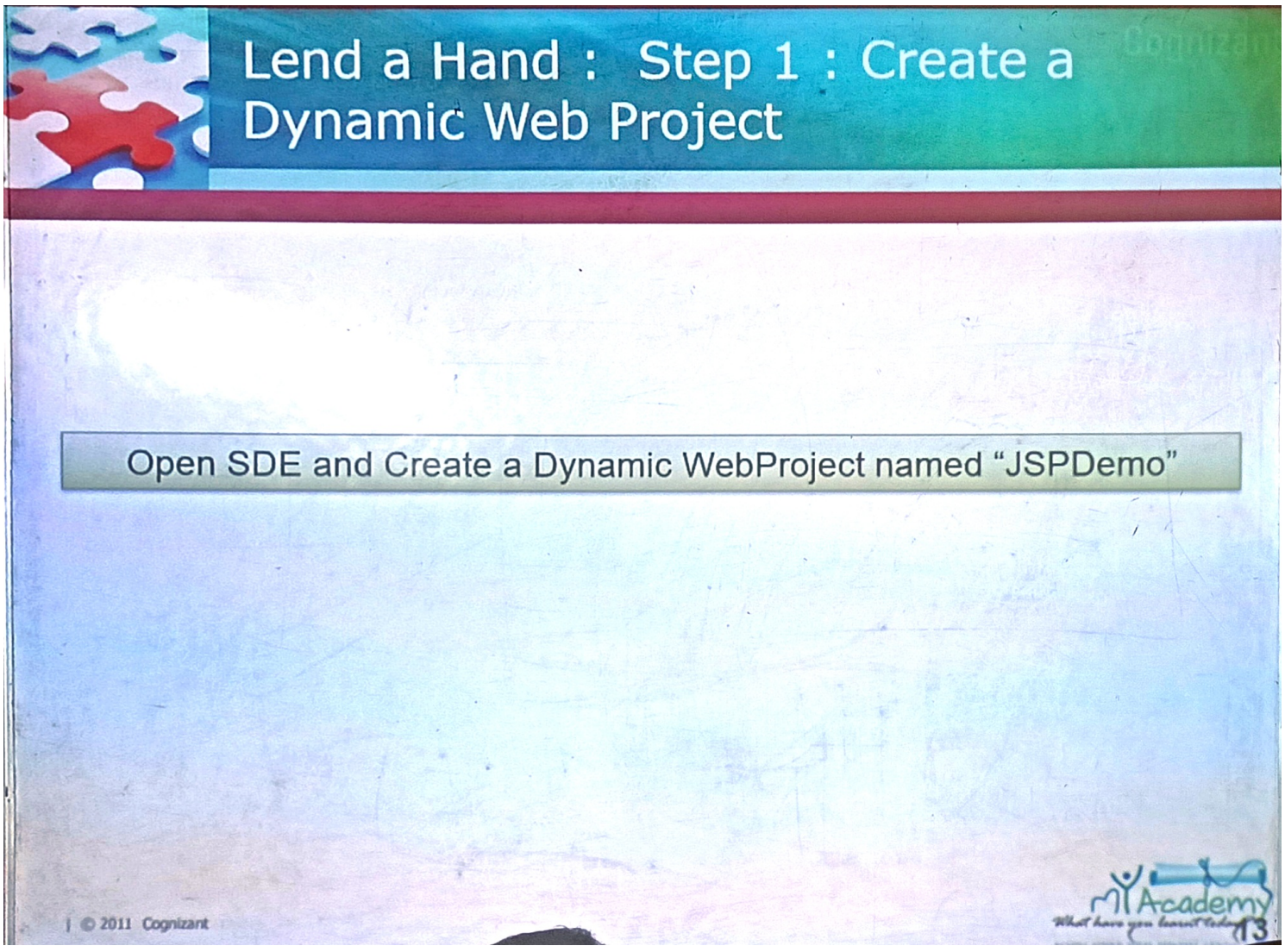
Example: To print the date dynamically for each client request.

```
<HTML>
<BODY> Hello!  The time is now <%= new java.util.Date() %>
</BODY>
</HTML>
```

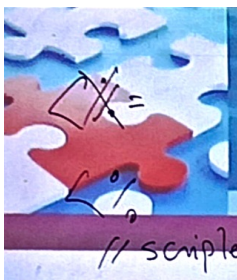
The date expression will be evaluated and the current date will be printed in the HTML rendered.

JSP Life Cycle with a demo




Lend a Hand : Step 1 : Create a Dynamic Web Project
Open SDE and Create a Dynamic WebProject named “JSPDemo”
© 2011 Cognizant
Academy
13

Expression Element

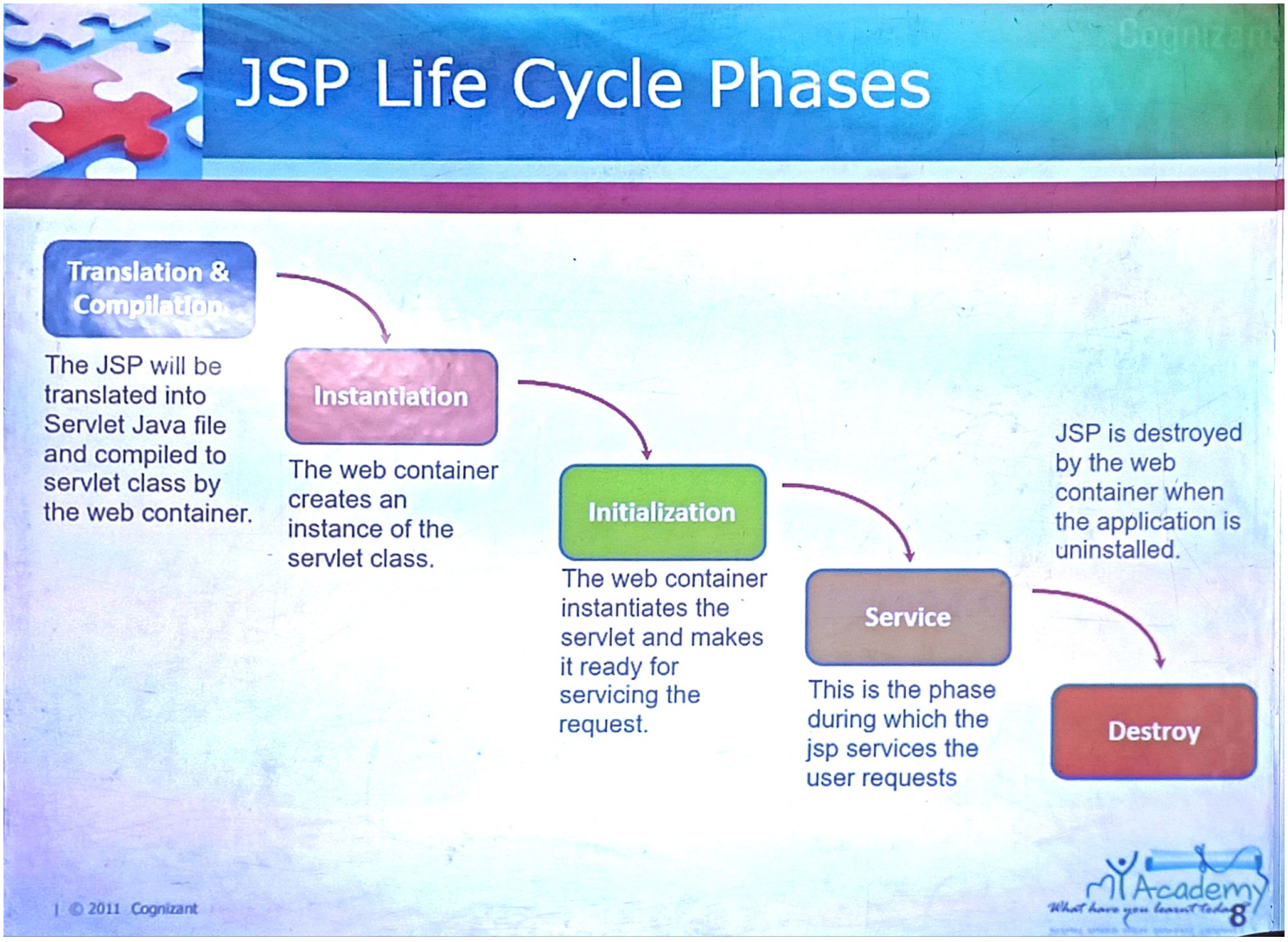


- Used to write dynamic content back to the client browser.
- Used in place of ***out.print()*** method.
- Only expressions are supported inside the tag. Declarations of methods and variables is **not** possible inside this tag.
- During translation the return type of expression goes as argument into ***out.print()*** method.
- Expression should ***not*** be ended with a semicolon (;) since semicolon are automatically added during translation.

Jsp Life Cycle methods

The following methods will be generated by the web container when translating the JSP to the Servlet Java file.

- **jspInit()** - The web container calls the jspInit() to initialize the servlet instance generated. It is invoked before servicing the client request and invoke only once for a servlet instance.
- **_jspservice()** - The container calls the jspservice() for each user request, passing it the request and the response objects.
- **jspDestroy()** - The container calls this when it decides take the instance out of service. It is the last method called in the servlet instance.


JSP Life Cycle Phases
Translation & Compilation
The JSP will be translated into Servlet Java file and compiled to servlet class by the web container.
Instantiation
The web container creates an instance of the servlet class.
Initialization
The web container instantiates the servlet and makes it ready for servicing the request.
Service
This is the phase during which the jsp services the user requests
Destroy
JSP is destroyed by the web container when the application is uninstalled.
© 2011 Cognizant
Academy
What have you learnt today?
8

How to Declare?

Methods or variables are declared using **<%!** and **%>** delimiters

Syntax: <%! variable= 0; %>

Example: This declares a variable count as int and set value 10.

```
<%! int count= 10; %>
```

Sample JSP page

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE ht[illegible] "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>Index</title>
</head>
<body>
<h1>This is a JSP page</h1>
<%
    int i = 5;
    int j = 20;
    int sum = i + j;
    out.print("sum =" + sum);
%>
<h1>You have seen some java code above</h1>
</body>
</html>
```

Java code embedded inside HTML tags using **<%%>** tags. This is the basic structure of JSP

Declarations Element

- Declarations are used to declare, define methods & instance variables.
- Declaration tag does not produce any output that is sent to client.
- The methods and classes declared will be translated as class level variables and methods during translation.

Scriplet Element

- Used to embed java code in JSP pages.
- Contents of JSP scriptlet goes into ***_jspService()*** method during the translation phase.
- Code should comply with syntactical and semantic construct of java.
- Embedded between **<% and %>** delimiters.

How to Create a Scriplet

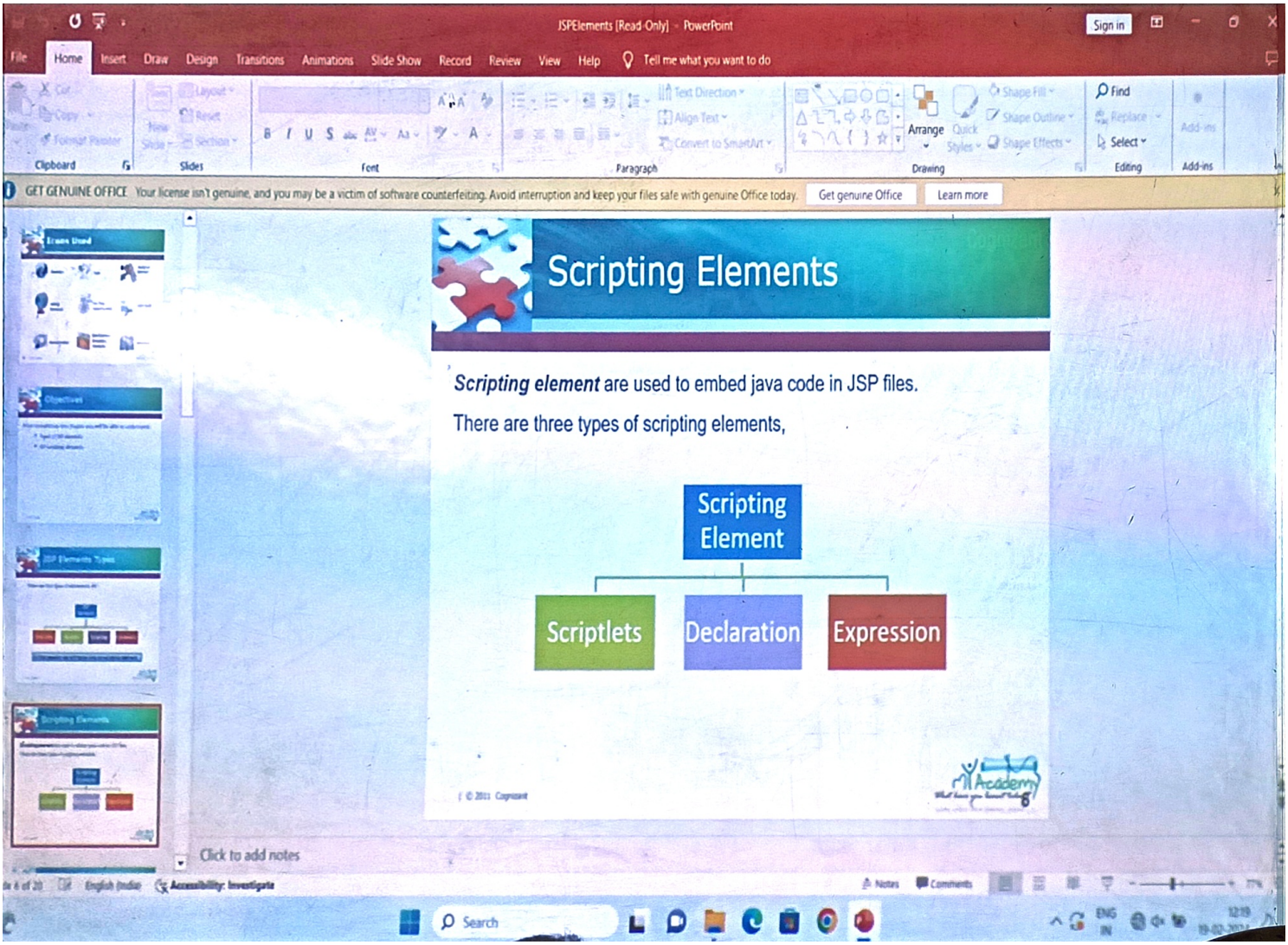
// scriplets

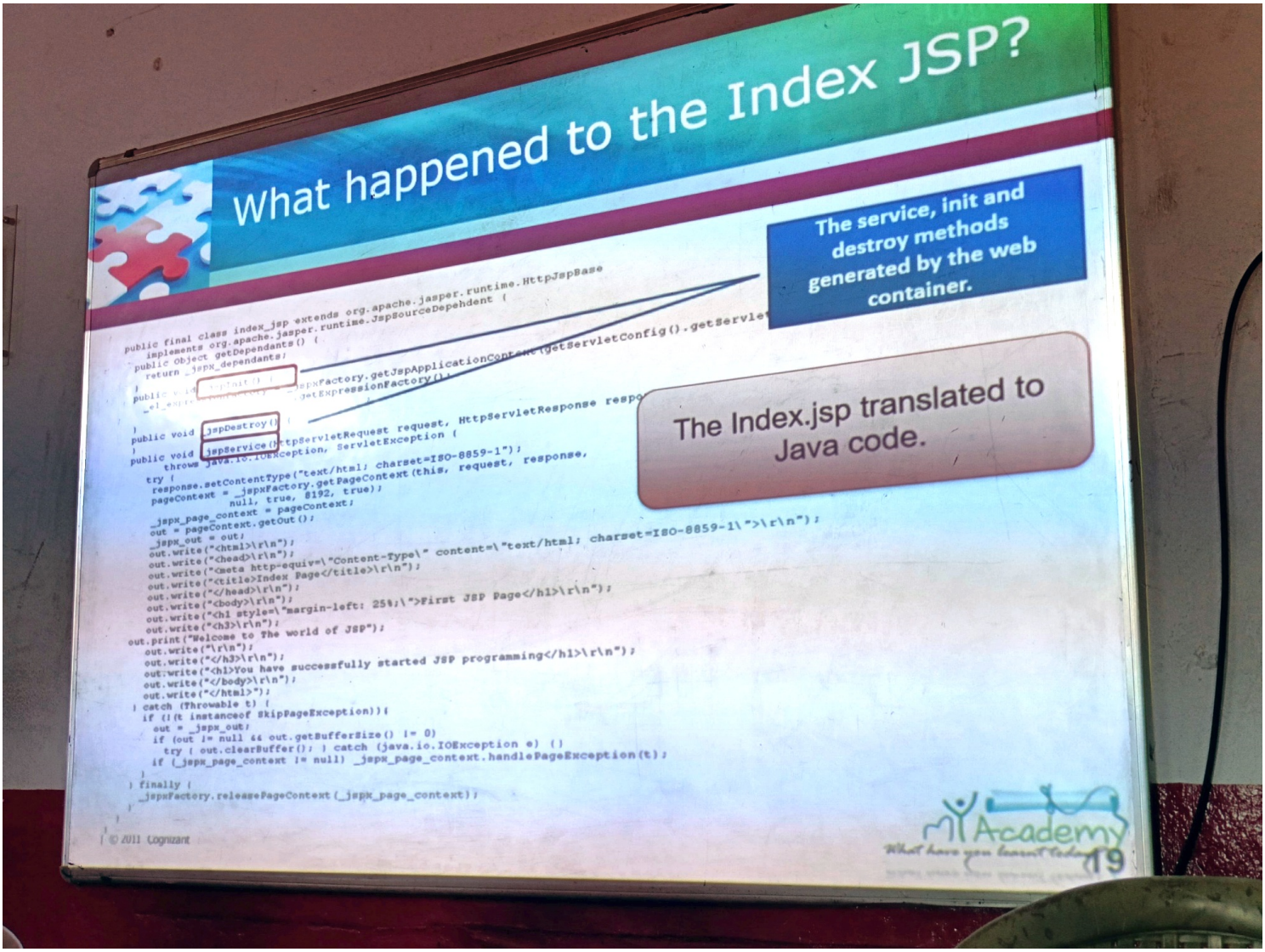
Scriplets are embedded between **<%** and **%>** delimiters

Syntax: <% Java code goes in here%>

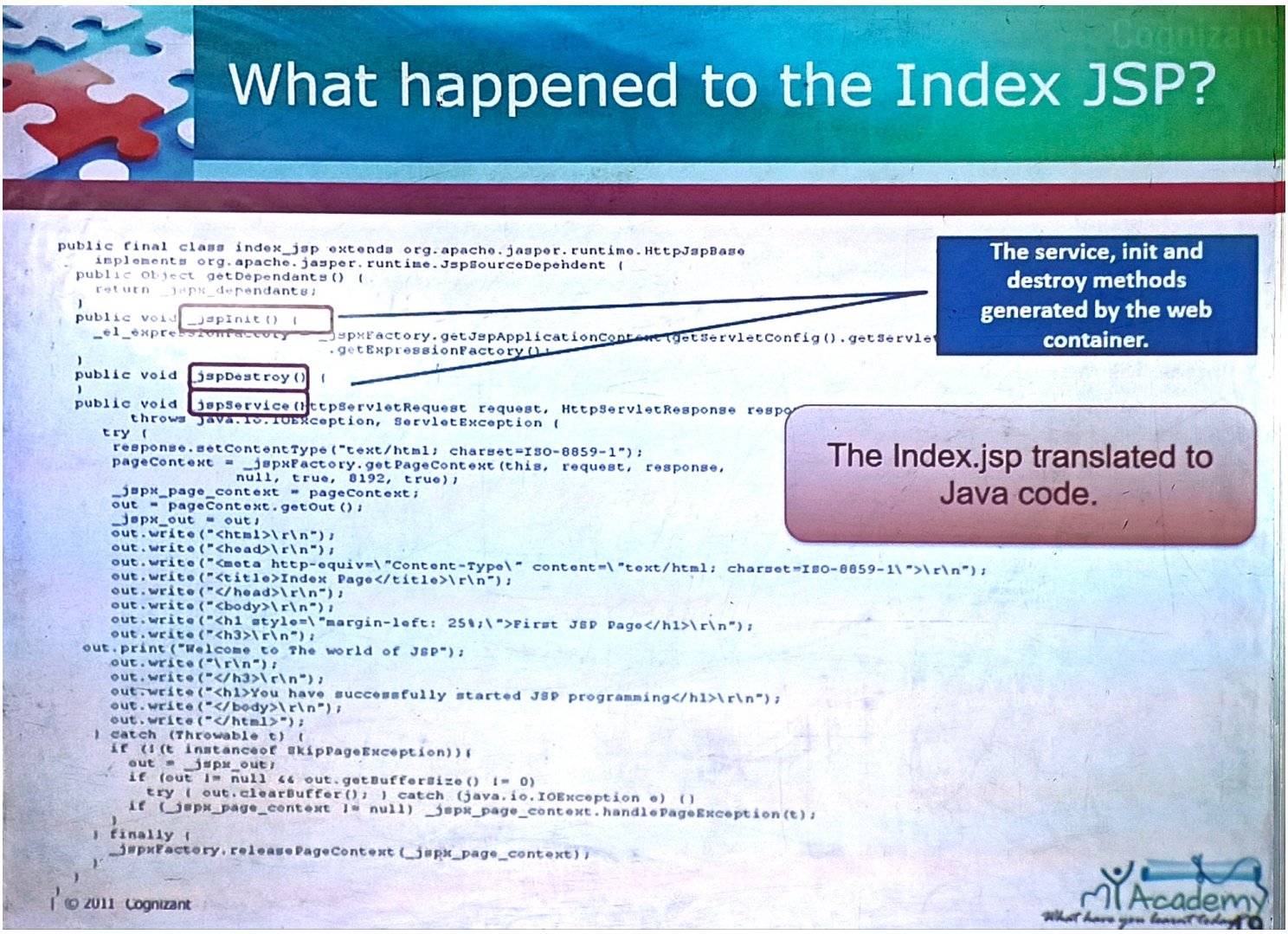
Example: To print a variable value,

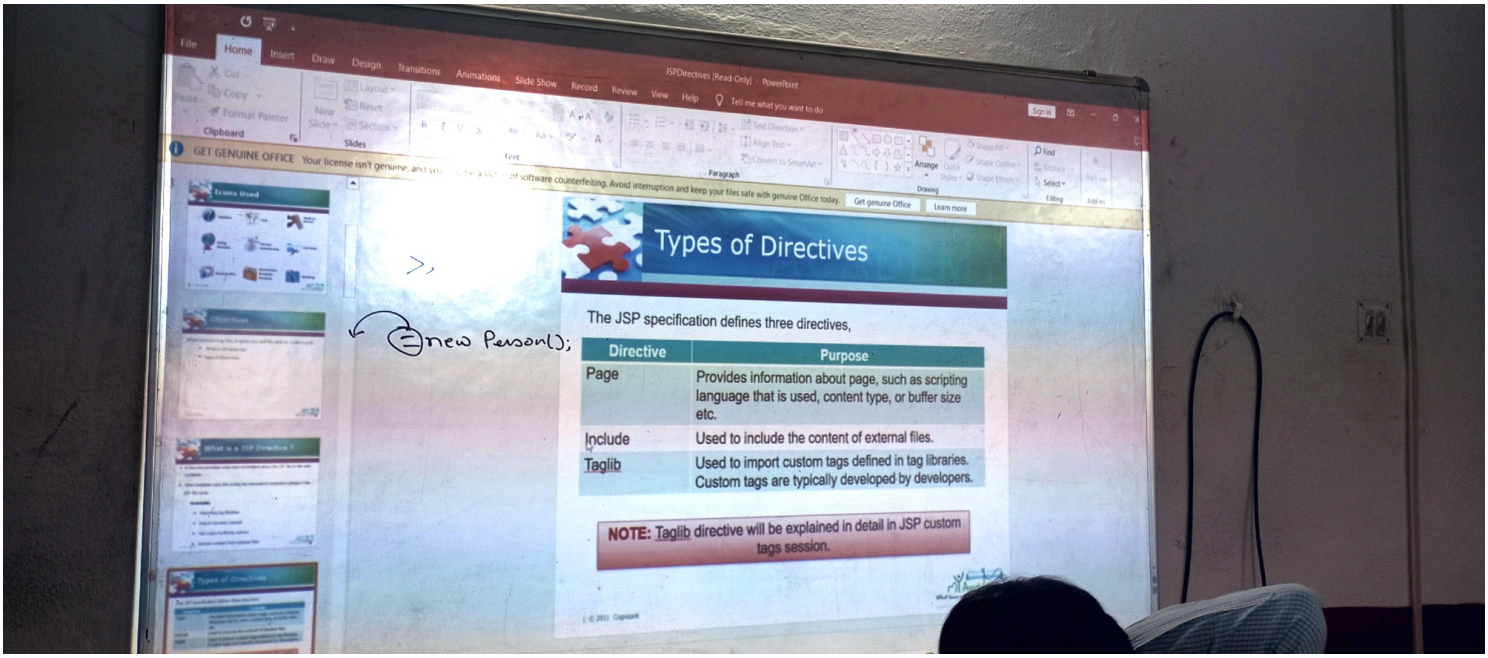
```
<%
    String username = "visualbuilder" ;
    out.println ( username ) ;
%>
```

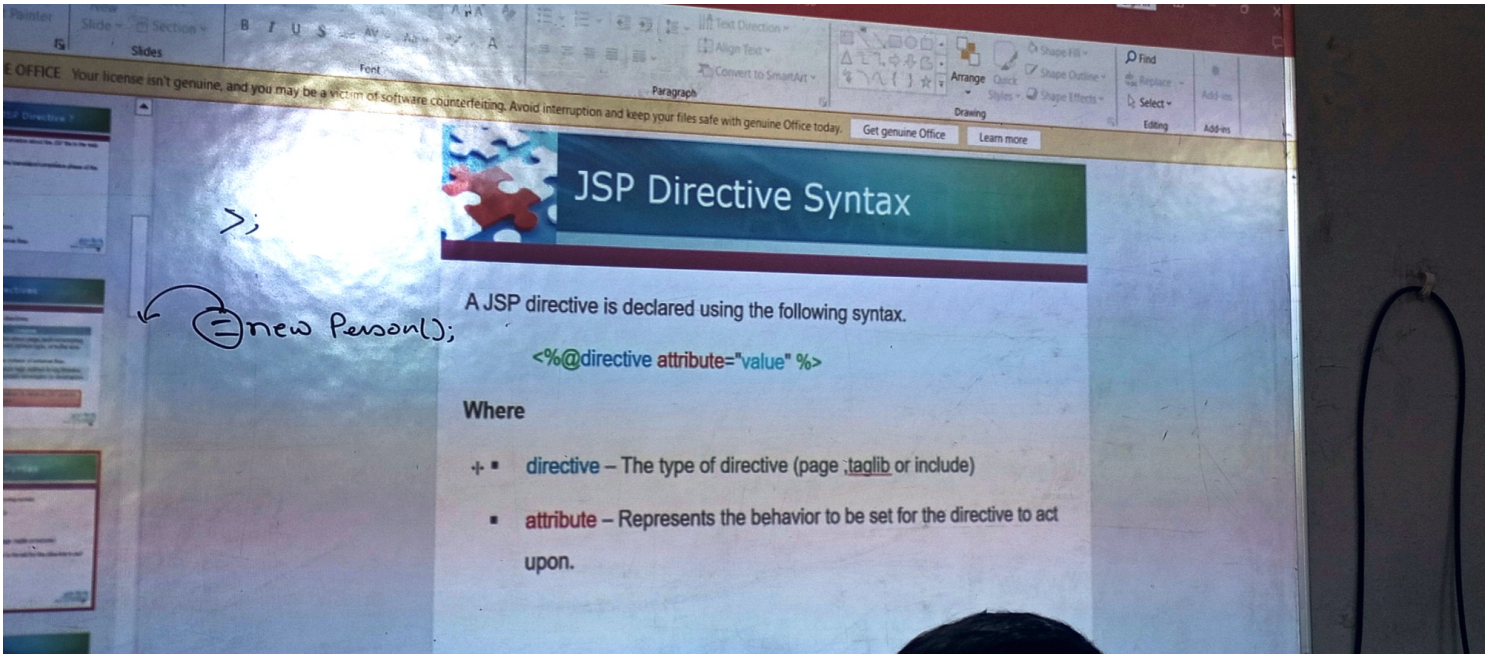

JSPElements [Read-Only] - PowerPoint
Sign in
File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help Tell me what you want to do
GET GENUINE OFFICE Your license isn't genuine, and you may be a victim of software counterfeiting. Avoid interruption and keep your files safe with genuine Office today.
Get genuine Office
Learn more
Scripting Elements
Scripting element are used to embed java code in JSP files.
There are three types of scripting elements,
Scripting Element
Scriptlets
Declaration
Expression
Click to add notes
Search

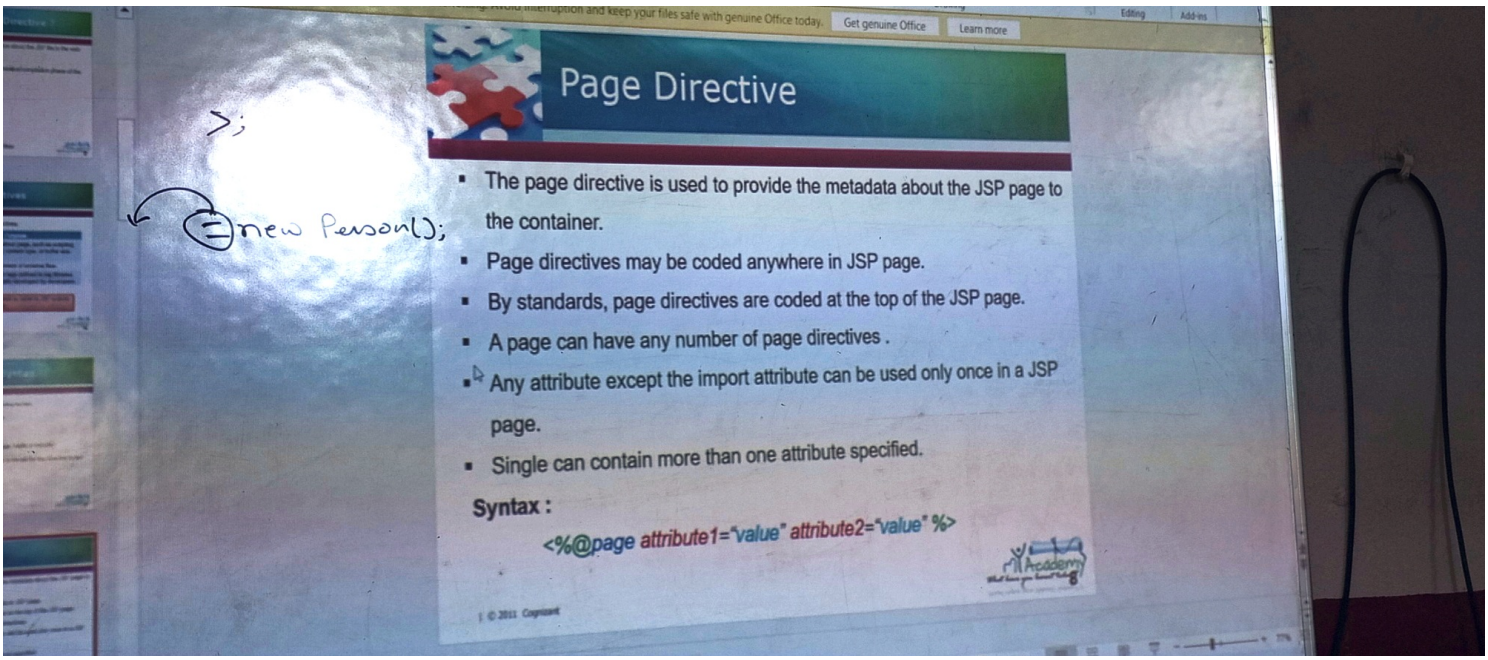

What happened to the Index JSP?
The service, init and destroy methods generated by the web container.
The Index.jsp translated to Java code.
public final class index_jsp extends org.apache.jasper.runtime.HttpJspBase
implements org.apache.jasper.runtime.JspSourceDependent {
public Object getDependants() {
return _jspx_dependants;
}
public void jspInit() {
public void jspDestroy() {
}
public void jspService(HttpServletRequest request, HttpServletResponse response,
throws java.io.IOException, ServletException {
try {
response.setContentType("text/html; charset=ISO-8859-1");
pageContext = _jspxFactory.getPageContext(this, request, response,
null, true, 8192, true);
_jspx_page_context = pageContext;
out = pageContext.getOut();
_jspx_out = out;
out.write("<html>\r\n");
out.write("<head>\r\n");
out.write("<meta http-equiv=\"Content-Type\" content=\"text/html; charset=ISO-8859-1\">\r\n");
out.write("<title>Index Page</title>\r\n");
out.write("</head>\r\n");
out.write("<body>\r\n");
out.write("<h1 style=\"margin-left: 25%;\">First JSP Page</h1>\r\n");
out.write("<h3>\r\n");
out.print("Welcome to The world of JSP");
out.write("\r\n");
out.write("</h3>\r\n");
out.write("<h1>You have successfully started JSP programming</h1>\r\n");
out.write("</body>\r\n");
out.write("</html>");
} catch (Throwable t) {
if (!(t instanceof SkipPageException)){
out = _jspx_out;
if (out != null && out.getBufferSize() != 0)
try { out.clearBuffer(); } catch (java.io.IOException e) {}
if (_jspx_page_context != null) _jspx_page_context.handlePageException(t);
}
} finally {
_jspxFactory.releasePageContext(_jspx_page_context);
}
}
© 2011 Cognizant
Academy
What have you learnt today?
19

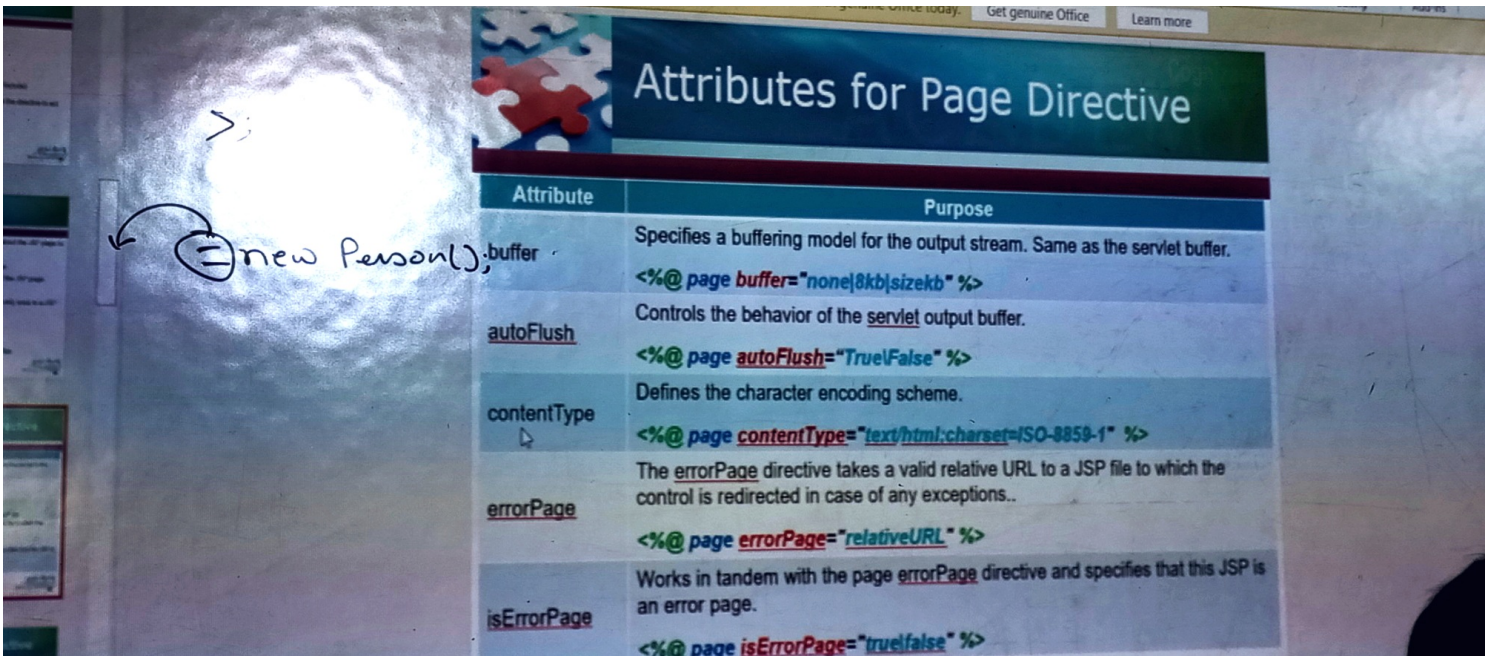
What happened to the Index JSP?

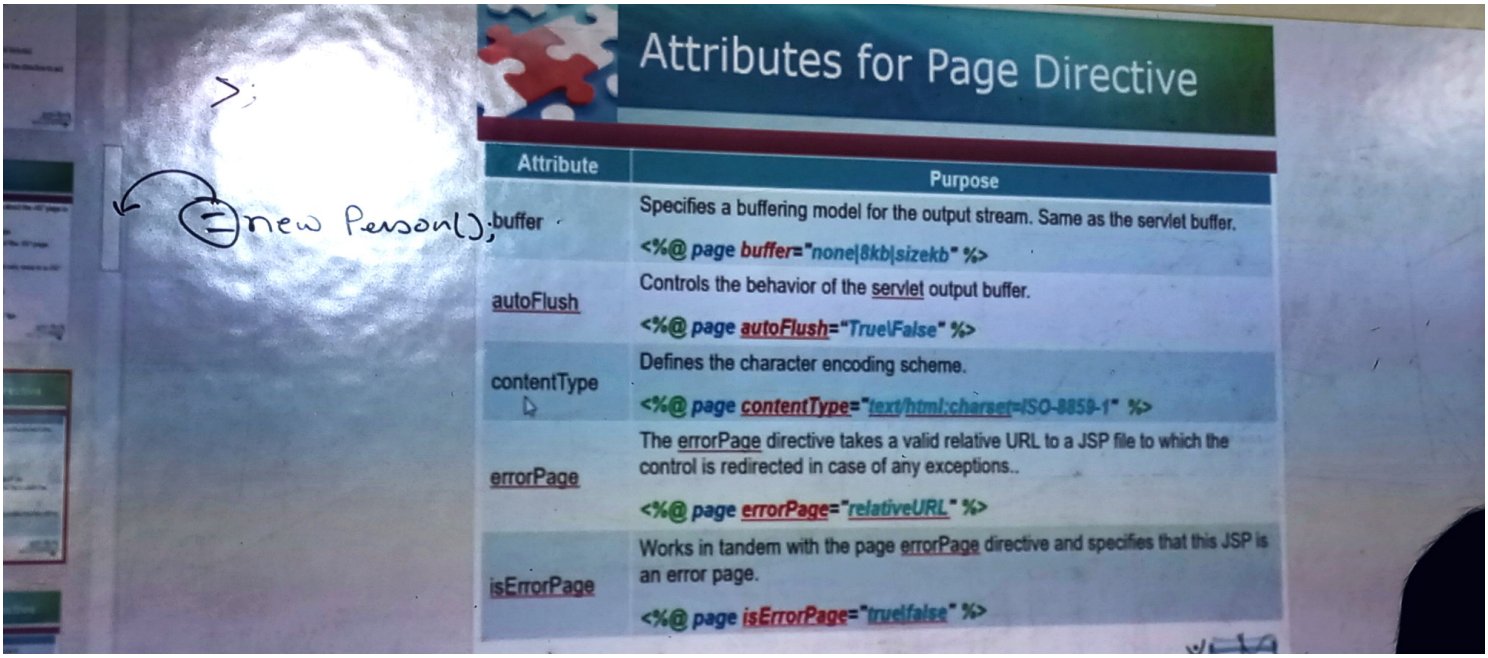


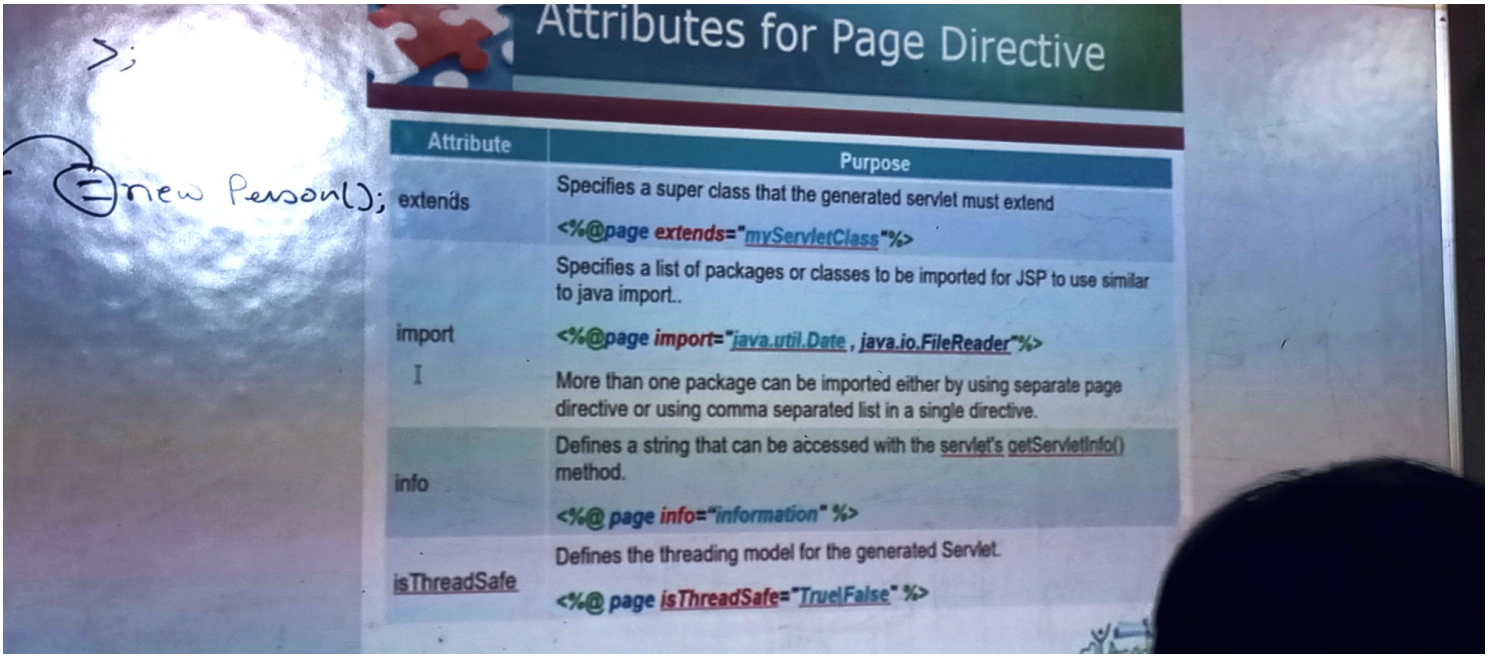

Types of Directives
The JSP specification defines three directives,
Directive
Purpose
Page
Provides information about page, such as scripting language that is used, content type, or buffer size etc.
Include
Used to include the content of external files.
Taglib
Used to import custom tags defined in tag libraries. Custom tags are typically developed by developers.
NOTE: Taglib directive will be explained in detail in JSP custom tags session.
new Person();

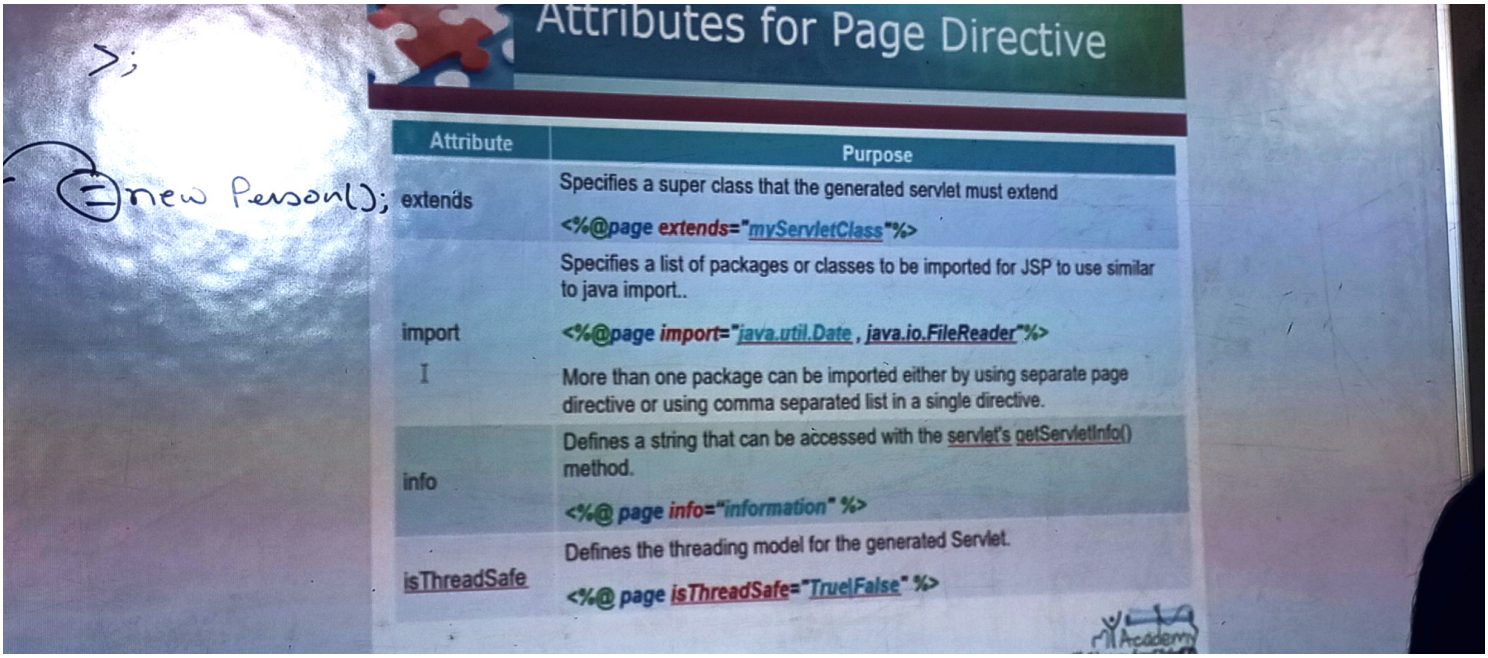

E OFFICE Your license isn't genuine, and you may be a victim of software counterfeiting. Avoid interruption and keep your files safe with genuine Office today.
Get genuine Office
Learn more
JSP Directive Syntax
A JSP directive is declared using the following syntax.
<%@directive attribute="value" %>
Where
directive – The type of directive (page ,taglib or include)
attribute – Represents the behavior to be set for the directive to act upon.
>;
=new Person();

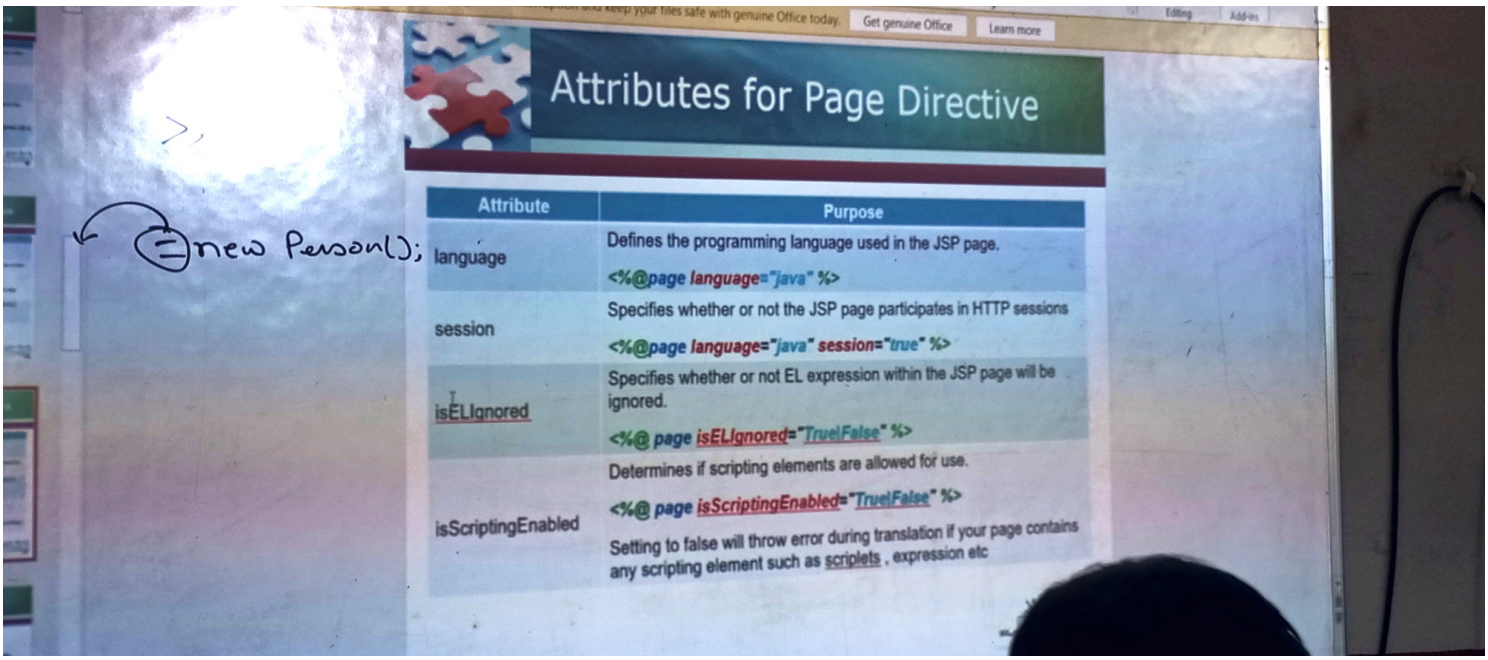

Get genuine Office
Learn more
Page Directive
The page directive is used to provide the metadata about the JSP page to the container.
Page directives may be coded anywhere in JSP page.
By standards, page directives are coded at the top of the JSP page.
A page can have any number of page directives .
Any attribute except the import attribute can be used only once in a JSP page.
Single can contain more than one attribute specified.
Syntax :
<%@page attribute1="value" attribute2="value" %>
new Person();

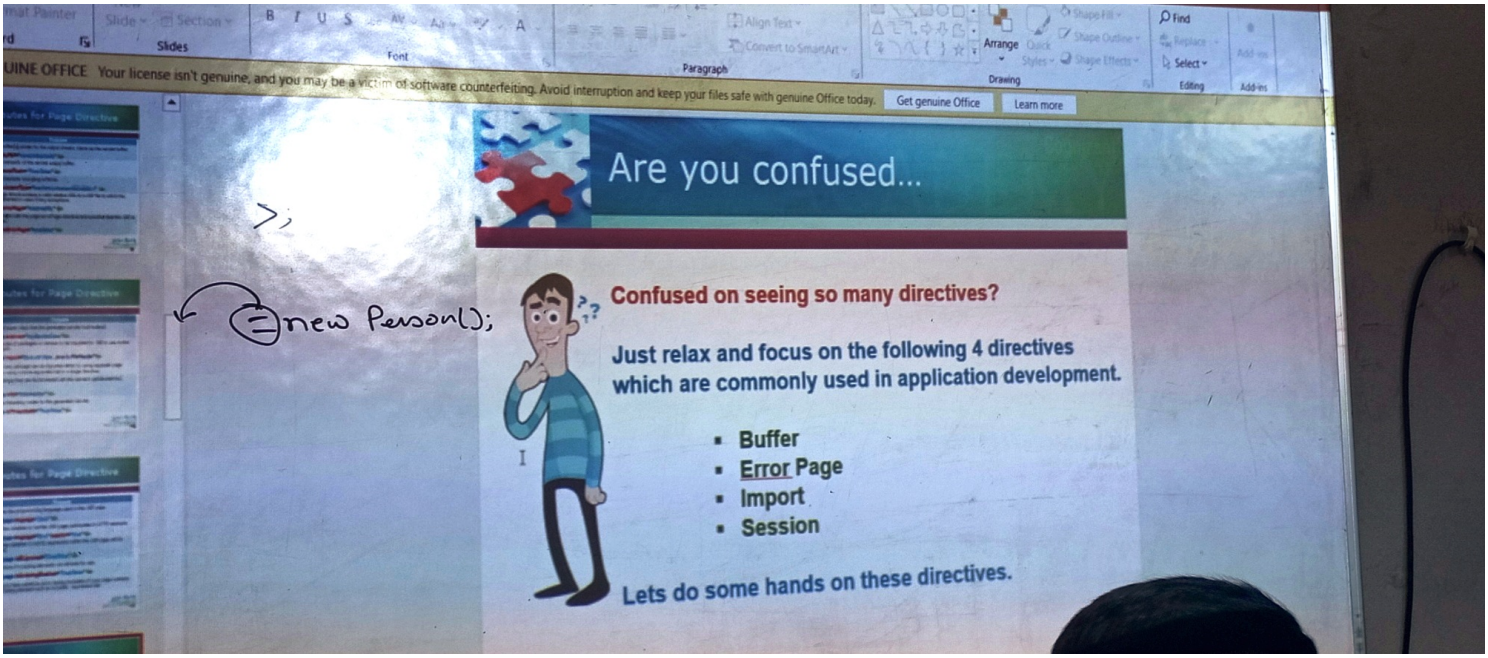

Get genuine Office
Learn more
new Person();
Attributes for Page Directive
Attribute
Purpose
buffer
Specifies a buffering model for the output stream. Same as the servlet buffer.
<%@ page buffer="none|8kb|sizekb" %>
autoFlush
Controls the behavior of the servlet output buffer.
<%@ page autoFlush="True\False" %>
contentType
Defines the character encoding scheme.
<%@ page contentType="text/html;charset=ISO-8859-1" %>
errorPage
The errorPage directive takes a valid relative URL to a JSP file to which the control is redirected in case of any exceptions..
<%@ page errorPage="relativeURL" %>
isErrorPage
Works in tandem with the page errorPage directive and specifies that this JSP is an error page.
<%@ page isErrorPage="true|false" %>

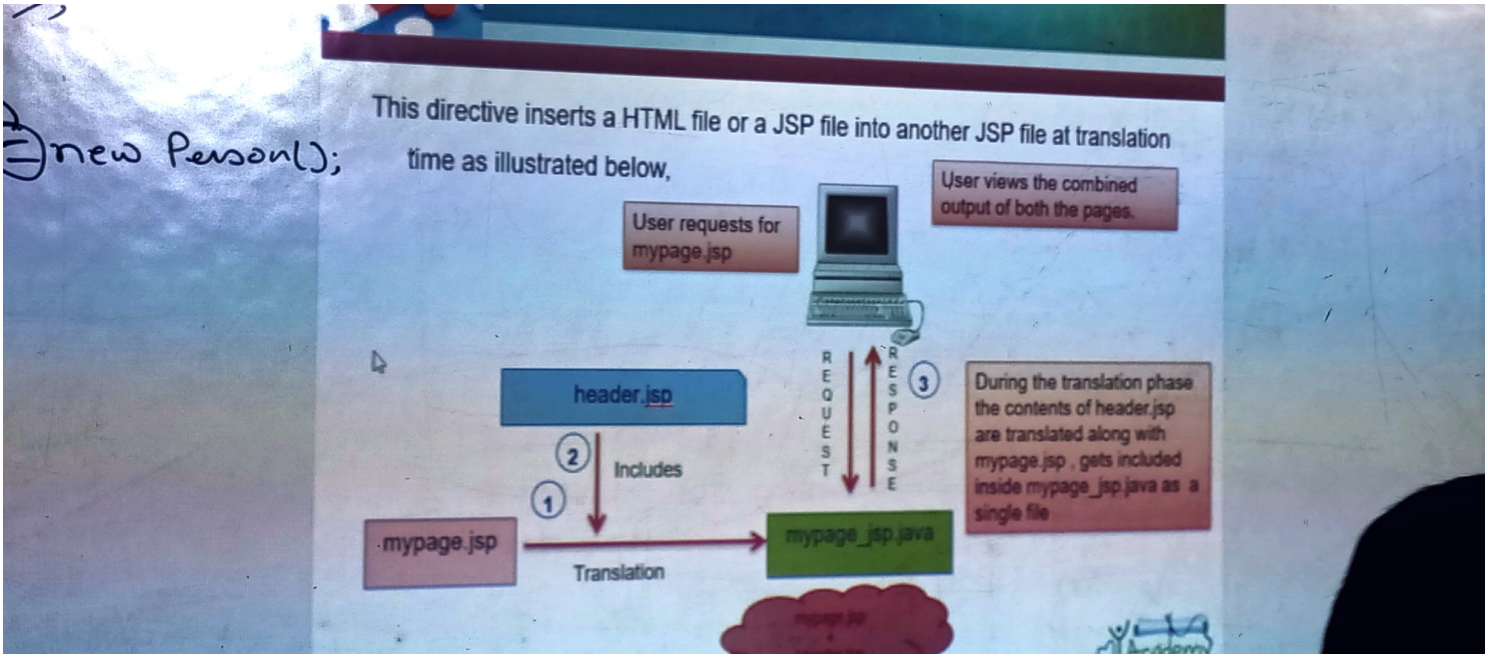

new Person();
Attributes for Page Directive
Attribute
Purpose
buffer
Specifies a buffering model for the output stream. Same as the servlet buffer.
<%@ page buffer="none|8kb|sizekb" %>
autoFlush
Controls the behavior of the servlet output buffer.
<%@ page autoFlush="True\False" %>
contentType
Defines the character encoding scheme.
<%@ page contentType="text/html;charset=ISO-8859-1" %>
errorPage
The errorPage directive takes a valid relative URL to a JSP file to which the control is redirected in case of any exceptions..
<%@ page errorPage="relativeURL" %>
isErrorPage
Works in tandem with the page errorPage directive and specifies that this JSP is an error page.
<%@ page isErrorPage="true\false" %>

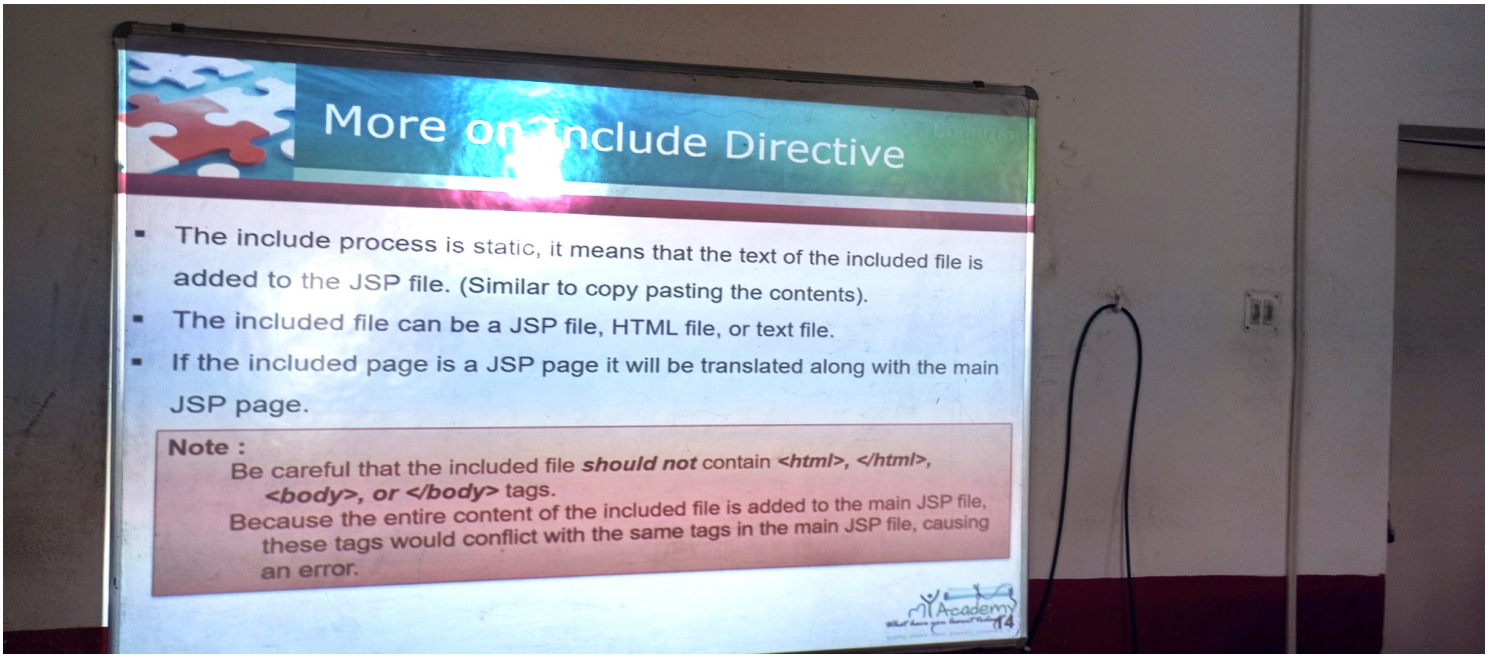

Attributes for Page Directive
Attribute
Purpose
extends
Specifies a super class that the generated servlet must extend
<%@page extends="myServletClass"%>
import
Specifies a list of packages or classes to be imported for JSP to use similar to java import..
<%@page import="java.util.Date , java.io.FileReader"%>
More than one package can be imported either by using separate page directive or using comma separated list in a single directive.
info
Defines a string that can be accessed with the servlet's getServletInfo() method.
<%@ page info="information" %>
isThreadSafe
Defines the threading model for the generated Servlet.
<%@ page isThreadSafe="True|False" %>

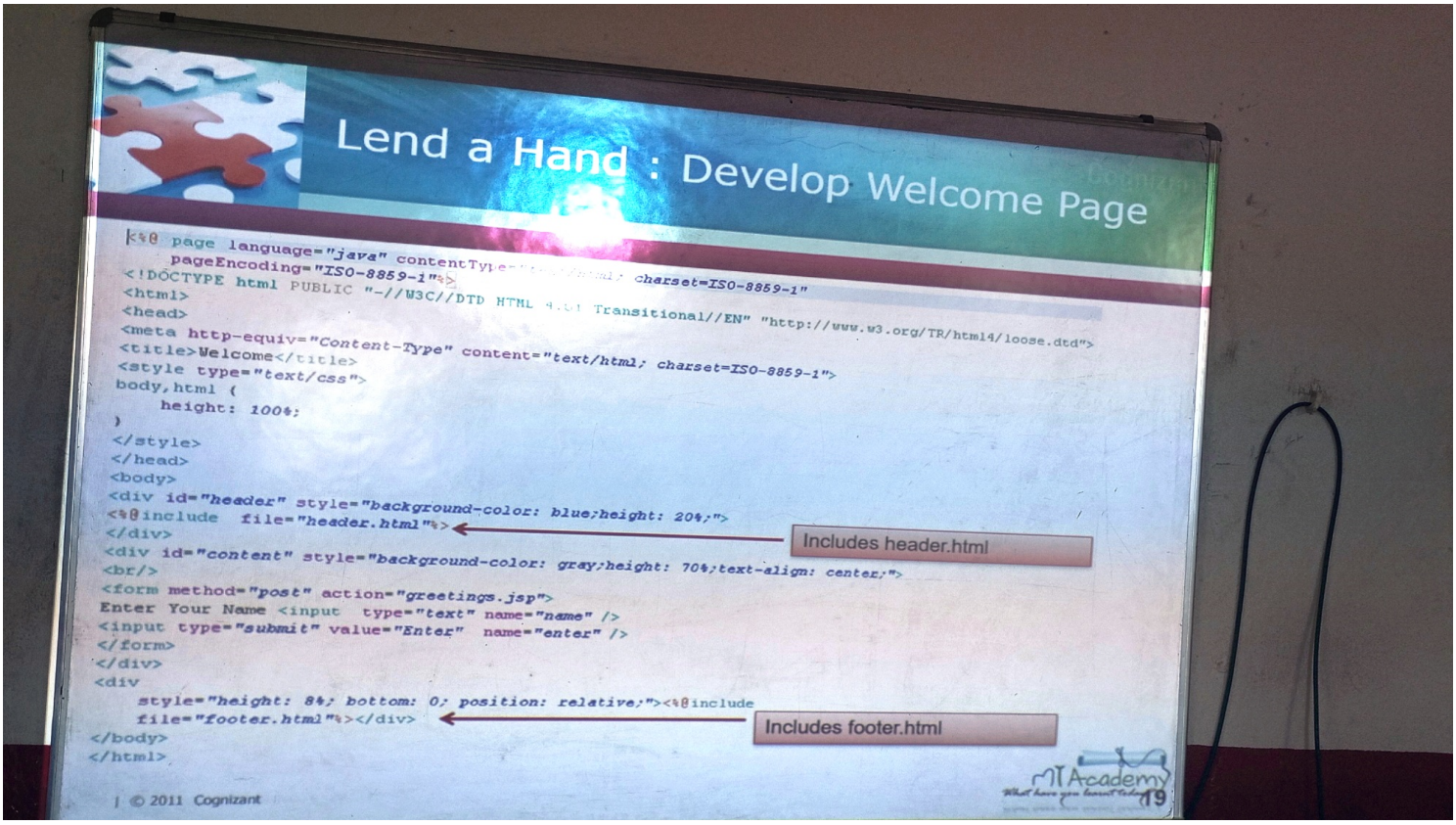

Attributes for Page Directive
Attribute
Purpose
extends
Specifies a super class that the generated servlet must extend
<%@page extends="myServletClass"%>
import
Specifies a list of packages or classes to be imported for JSP to use similar to java import..
<%@page import="java.util.Date , java.io.FileReader"%>
More than one package can be imported either by using separate page directive or using comma separated list in a single directive.
info
Defines a string that can be accessed with the servlet's getServletInfo() method.
<%@ page info="information" %>
isThreadSafe
Defines the threading model for the generated Servlet.
<%@ page isThreadSafe="True|False" %>
new Person();


Get genuine Office
Learn more
Attributes for Page Directive
Attribute
Purpose
language
Defines the programming language used in the JSP page.
<%@page language="java" %>
session
Specifies whether or not the JSP page participates in HTTP sessions
<%@page language="java" session="true" %>
isELIgnored
Specifies whether or not EL expression within the JSP page will be ignored.
<%@ page isELIgnored="True|False" %>
isScriptingEnabled
Determines if scripting elements are allowed for use.
<%@ page isScriptingEnabled="True|False" %>
Setting to false will throw error during translation if your page contains any scripting element such as scriplets , expression etc
new Person();


UINE OFFICE Your license isn't genuine, and you may be a victim of software counterfeiting. Avoid interruption and keep your files safe with genuine Office today.
Get genuine Office
Learn more
Are you confused...
Confused on seeing so many directives?
Just relax and focus on the following 4 directives which are commonly used in application development.
Buffer
Error Page
Import
Session
Lets do some hands on these directives.


new Person();
This directive inserts a HTML file or a JSP file into another JSP file at translation time as illustrated below,
User requests for mypage.jsp
User views the combined output of both the pages.
header.jsp
2
Includes
1
mypage.jsp
Translation
mypage_jsp.java
REQUEST
RESPONSE
3
During the translation phase the contents of header.jsp are translated along with mypage.jsp , gets included inside mypage_jsp.java as a single file

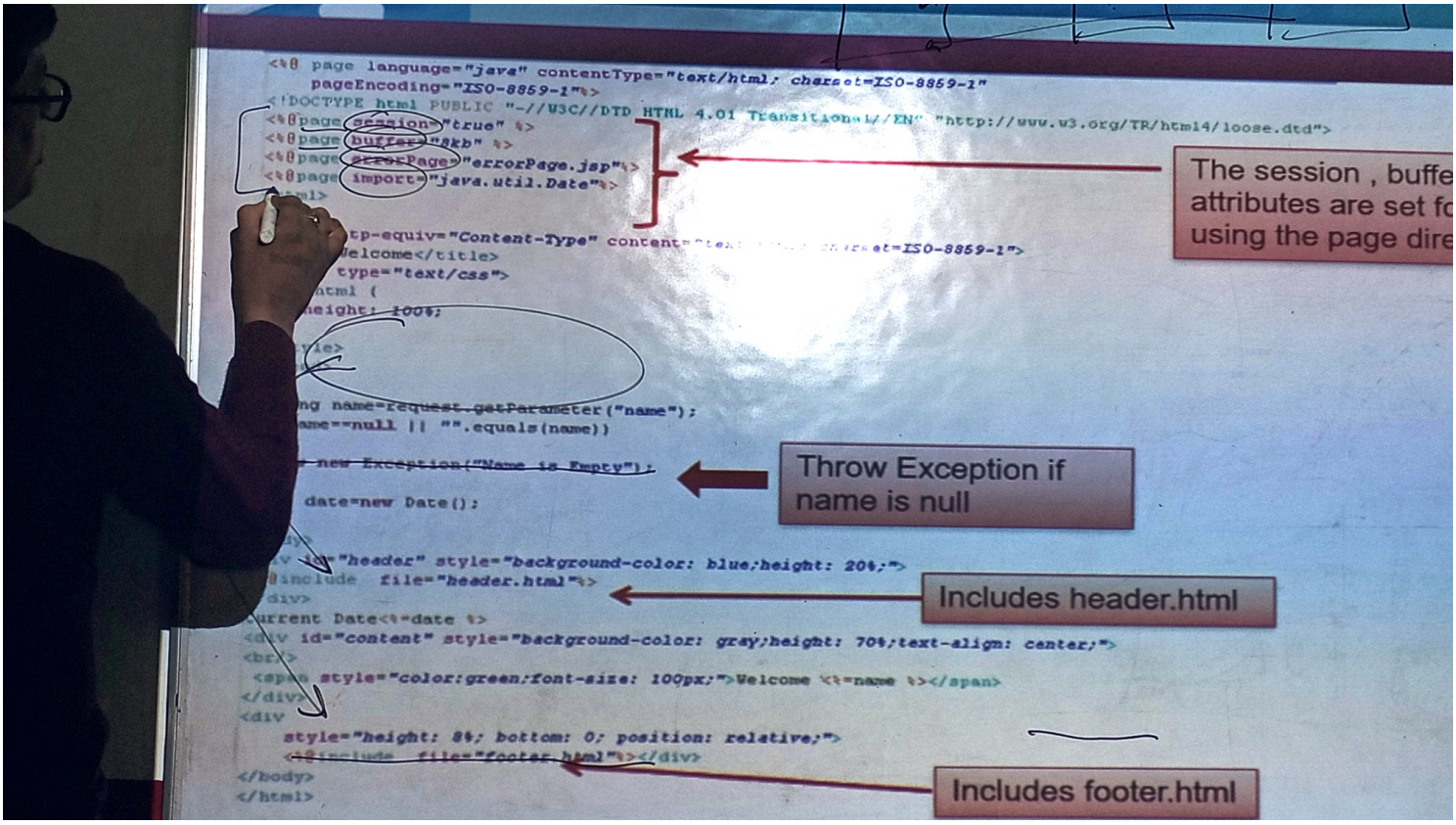

More on Include Directive
The include process is static, it means that the text of the included file is added to the JSP file. (Similar to copy pasting the contents).
The included file can be a JSP file, HTML file, or text file.
If the included page is a JSP page it will be translated along with the main JSP page.
Note :
Be careful that the included file should not contain <html>, </html>, <body>, or </body> tags.
Because the entire content of the included file is added to the main JSP file, these tags would conflict with the same tags in the main JSP file, causing an error.
Academy
14


Lend a Hand : Develop Welcome Page
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
pageEncoding="ISO-8859-1"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>Welcome</title>
<style type="text/css">
body,html {
height: 100%;
}
</style>
</head>
<body>

<%@include file="header.html"%>

<form method="post" action="greetings.jsp">
Enter Your Name <input type="text" name="name" />
<input type="submit" value="Enter" name="enter" />
</form>

<div
style="height: 8%; bottom: 0; position: relative;"><%@include
file="footer.html"%>
</body>
</html>
Includes header.html
Includes footer.html
© 2011 Cognizant
19


The session , buffe
attributes are set fo
using the page dire
Throw Exception if
name is null
Includes header.html
Includes footer.html