

Waukesha County Technical College

152-198 Distributed Java

Class 5 Plan and Assignments

Discussion Activities:

- **Due Today and Announcements:**
 1. Your “Class2Lab” lab activity #4 is due today on GitHub along with any fixes to activities 2 and 3 if necessary.
 2. JSTL and EL reading assignments should be completed by today
 3. “JstlExperiments” practice project due today on GitHub
- **Q&A**
- **Solutions to the Class2Lab Activity #4**
 - ✓ Student solutions
 - ✓ Instructor solution
- **Review of Student Work on JstlExperiments project**
 - Student solutions
 - Instructor leads group discussion on how to employ these capabilities to Class2Lab activity #4.

Introduction to JSTL (Java Standard Tag Library) and EL (Expression Language)

- Syntax and basic usage (see reference material below)
- Advantages:
 - Reduce coupling to server side objects
 - Reduce complexity by removing Java code from view and replacing with what are essentially macros that do things simply and with less code
 - Reduce labor
 - Fails gracefully – no exceptions to worry about!
- Disadvantages:
 - Two more “languages” to learn
 - Hard to debug
 - Not designer friendly
- Important To Dos
 - **SQL Functions:** Do not use! Violates Single Responsibility Principle in VIEW pages.
 - **i18n:** for internationalization. Don’t use now. We’ll discuss later in semester.
 - **EL:** one of the most important features! You do not need anything special in your JSP pages to use EL, however, you must be in a JSP page and you must be aware of the version of EL you are using (we are using the EL version that works with JEE 7)

- **JSTL:** Another important feature! You must be in a JSP page and you must add taglib statements at the top of the page. Here are the most common taglibs which you can place at the top of every JSP even if you don't use them (no performance penalty):

```
<%@taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
<%@taglib prefix="fn" uri="http://java.sun.com/jsp/jstl/functions" %>
<%@taglib prefix="fmt" uri="http://java.sun.com/jsp/jstl/fmt" %>
<%@taglib prefix="sec" uri="http://www.springframework.org/security/tags" %>
```

Handling Exceptions in a controller

- Instructor will demonstrate
- In general you should do traditional exception handling in the controller, and place the request dispatch code after the try-catch so that you can forward exception messages.
- Java v7 introduced a new way to handle exceptions, called “try-with-resources”. Here is the documentation:
<https://docs.oracle.com/javase/tutorial/essential/exceptions/tryResourceClose.html>
- It is recommended that you not use the try-with-resources approach to exception handling, because once you close or flush the response object you cannot perform any other operations with that response object. This includes using the forward method of the RequestDispatcher.
- When you create a new Servlet in Netbeans you will get sample code in the processRequest method that uses the try-with-resources technique. Revise this to use the old, traditional try-catch technique.

Using the CSS Editor in Netbeans

- ✓ There is a wizard for creating a new CSS file from the web category in Netbeans.
 - This will create a blank css file for you to edit, and
 - You will have some intellisense assistance in the editor, and
 - From the Window Menu in Netbeans you can select Web > CSS Styles to see a pane that displays your current CSS rules. And add rule icon helps you create new rules. You'll see this icon in the lower, properties panel.
 - You can drag and drop a CSS file from the projects tab into your web page to automatically create the link tag.

Introduction to Maven

- ✓ Maven is a Java build, deploy, test, report and dependency management system that can automate many of these tasks.
- ✓ The two main advantages of using Maven to develop Java applications is that it manages your dependent libraries for you and it is a universal format that works in any development tool or IDE that supports Maven. This means, for example, that you can create and work on a Maven project in Netbeans one day, and then load it into a different IDE – say Eclipse or IntelliJ – and continue working on it there the next day. The Maven project format is the same for all development tools, so it's portable.

- ✓ To create a Maven project go to the New Project > Maven category and select Maven Web Application. **Starting today all new projects must be created as Maven projects.**
- ✓ Read more about Maven here:
<https://books.sonatype.com/mvnref-book/reference/public-book.html>
- ✓ And here's a video of using Maven in Netbeans:
https://youtu.be/XMbTz_NQpUc

Lab:

- As a group we'll work on adding JSTL and/or EL to our Class2Lab activity #4.
- Next, we'll practice create a version of our Class2Lab project, using only activity #4, using Maven. We'll also practice using the Netbeans CSS editor to add some style to our pages. Then we'll clean, build and run the application.

Textbook Chapters (and other resources) covered:

- JSTL and EL Quick Reference PDF on Blackboard
- Official EL Reference: <https://docs.oracle.com/javaee/7/tutorial/jsf-el.htm#GJDDD>
- Official JSTL Reference (outdated JEE 5):
<http://docs.oracle.com/javaee/5/tutorial/doc/bnake.html>
- EL and JSTL tutorials and references listed in Class 4 Plan
- CSS Tutorials: <http://w3schools.com/css>
- Java EE v1.7 tutorial: <http://docs.oracle.com/javaee/7/tutorial/doc/home.htm>
- Java SE API (v1.8): <http://docs.oracle.com/javase/8/docs/api/>
- Java EE API (v1.7): <http://docs.oracle.com/javaee/7/api/>
- Online tutorials for client-side: <http://w2schools.com>
- Netbeans web development tutorials: <https://netbeans.org/kb/trails/java-ee.html>
- Netbeans Git User Guide: <http://netbeans.org/kb/docs/ide/git.html>
(don't use SSH – we'll be using the modern HTTPS approach)

Homework Work for Next Class (2 points for completion on time)

1. Complete any unfinished lab challenges
2. Continue study and experimentation with JSTL and EL and Maven.
3. Journal your experiences with your independent research and experimentation by Journaling your experiences.