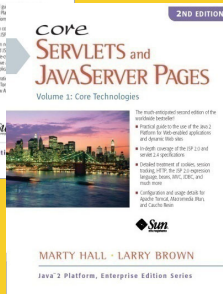
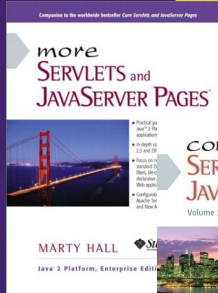




# The AjaxTags Library: Advanced Features

Originals of Slides and Source Code for Examples:  
<http://courses.coreservlets.com/Course-Materials/ajax.html>

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**Taught by the author of *Core Servlets and JSP*, *More Servlets and JSP*, and this tutorial. Available at public venues, or customized versions can be held on-site at your organization.**

- Courses developed and taught by Marty Hall
  - Java 6, intermediate/beginning servlets/JSP, advanced servlets/JSP, Struts, JSF 1.x & 2.0, Ajax, GWT, custom mix of topics
  - Ajax courses can concentrate on one library (jQuery, Prototype/Scriptaculous, Ext-JS, Dojo) or survey several
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  - Spring, Hibernate/JPA, EJB3, Ruby/Rails

Contact [hall@coreservlets.com](mailto:hall@coreservlets.com) for details

## Topics in This Section

- **Regions that display temporarily while server-side resource runs**
- **Autocomplete textboxes with associated values displayed in other textboxes**
- **Prefunctions and postfunctions**
  - Arbitrary JavaScript that runs before or after server-side resource
- **Functions that run when server has error**
- **Multiple triggers for server-side resources**

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## Setup/Review

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# Installation

- **Several required JAR files**
  - In Eclipse: WebContent/WEB-INF/lib
  - In deployed app: WEB-INF/lib
  - Download from <http://ajaxtags.sourceforge.net/>
- **Prototype and Scriptaculous JS files**
  - In Eclipse: WebContent/scripts
  - In deployed app: scripts
  - Download from <http://script.aculo.us/>
- **Simple installation**
  - Download prebuilt starting-point project: ajaxtags-blank.zip
    - Download from <http://courses.coreservlets.com/Course-Materials/ajax.html>

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## Basic Setup: advanced.jsp (Covered in Previous Lecture)

```
<!DOCTYPE ...>
<%@ taglib uri="http://ajaxtags.org/tags/ajax"
      prefix="ajax" %>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type"
      content="text/html; charset=UTF-8" />
<jsp:include page="/WEB-INF/includes/header.jsp"/>
...
<title>Advanced AjaxTags Examples</title>
</head>
<body>
...
</body></html>
```

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## Basic Setup: header.jsp (Covered in Previous Lecture)

```
<% request.setAttribute("contextPath",  
                        request.getContextPath()); %>  
<script src="{contextPath}/scripts/prototype-1.4.0.js"  
        type="text/javascript"></script>  
<script src="{contextPath}/scripts/scriptaculous.js"  
        type="text/javascript"></script>  
<script src="{contextPath}/scripts/overlibmws.js"  
        type="text/javascript"></script>  
<script src="{contextPath}/scripts/ajaxtags-1.2-beta2.js"  
        type="text/javascript"></script>  
<link rel="stylesheet"  
      href="{contextPath}/css/styles.css"  
      type="text/css"/>
```

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## ajax:autocomplete with indicator

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## Basic Idea

- **Approach**

- indicator attribute designates section (usually div or span) that will be enabled while results are being loaded
  - It is disabled to start with, and disabled again when results come back
  - Often contains animated GIF showing progress

- **Main use**

- Gives user feedback when server-side resource takes a long time

- **Note**

- You can reproduce indicator region in other places by using Effect.Show from Scriptaculous
  - See later lectures on Scriptaculous

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## JSP Example

```
<fieldset>
  <legend>ajax:autocomplete with indicator</legend>
  <form>
    <label for="language">Programming language:</label>
    <input type="text" name="language" id="language"/>
    <span id="indicatorRegion" style="display:none;">
      
      Loading...
    </span>
  </form>
  <ajax:autocomplete
    source="language"
    target="language"
    baseUrl="{contextPath}/slow-language-completer.ajax"
    className="autocomplete"
    minimumCharacters="1"
    indicator="indicatorRegion"/>
</fieldset>
```

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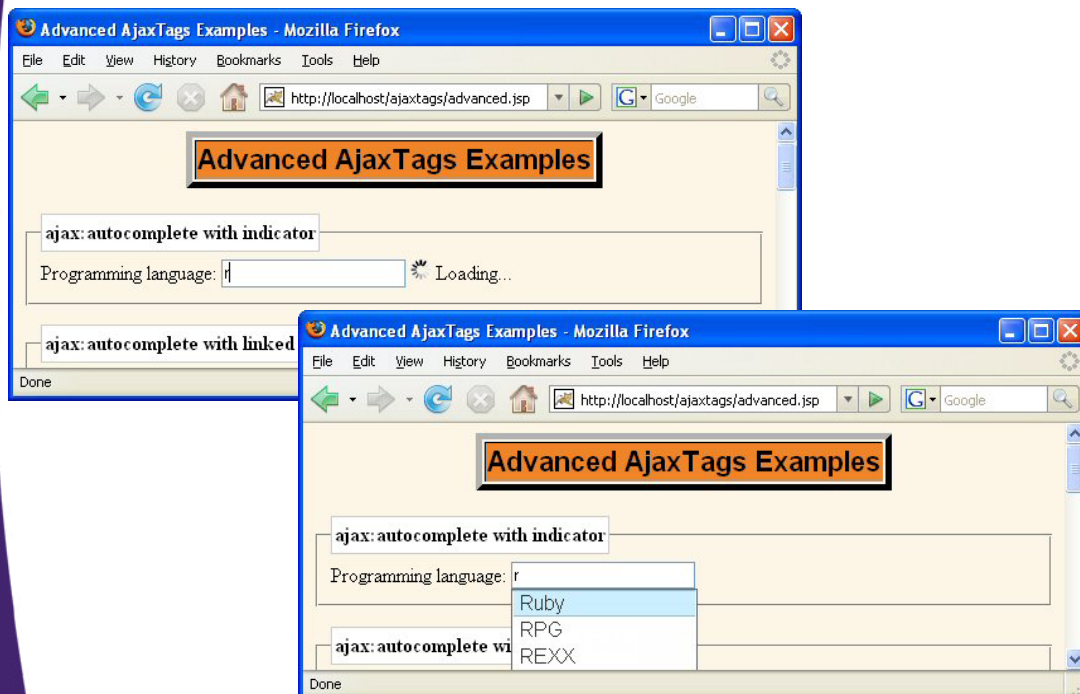
# Server-Side Code

```
public class SlowLanguageCompleter
    extends LanguageCompleter {
    @Override
    public String getXmlContent(HttpServletRequest request,
        HttpServletResponse
        response)
        throws Exception {
        try { Thread.sleep(5000); } catch(Exception e) {}
        return(super.getXmlContent(request, response));
    }
}
```

LanguageCompleter shown in previous section

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# Results



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# ajax:autocomplete with Linked Fields

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## Basic Idea

- **Approach**

- Server-side resource returns a list with names that are different from values
  - `xmlBuilder.addItem("name1", "value1");`
  - In last section, names and values were the same
    - When name selected from dropdown, that name (value) put into the textfield that has the dropdown
- Names shown in dropdown box under main textfield
- When a value is selected from dropdown, secondary value placed into a different textfield

- **Main uses**

- When you have auxiliary information to display to user
  - E.g., show description when catalog ID selected
- When you have associated values
  - E.g., word in another language

## JSP Example

```
<fieldset>
  <legend>ajax:autocomplete with linked fields</legend>
  <form>
    <label for="englishAnimal">English animal:</label>
    <input type="text" id="englishAnimal"/>
    <label for="spanishAnimal">Spanish animal:</label>
    <input type="text" id="spanishAnimal"/>
  </form>
  <ajax:autocomplete
    source="englishAnimal"
    target="spanishAnimal"
    baseUrl="${contextPath}/animal-completer.ajax"
    parameters="englishAnimal={englishAnimal}"
    className="autocomplete"
    minimumCharacters="1"/>
</fieldset>
```

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## Server-Side Code

```
import javax.servlet.http.*;
import org.ajaxtags.helpers.*;
import org.ajaxtags.servlets.*;

public class AnimalCompleter extends BaseAjaxServlet {
  @Override
  public String getXmlContent(HttpServletRequest request,
                              HttpServletResponse response)
    throws Exception {
    String animalPrefix =
      request.getParameter("englishAnimal");
    String animalList = makeAnimalList(animalPrefix);
    return(animalList);
  }
}
```

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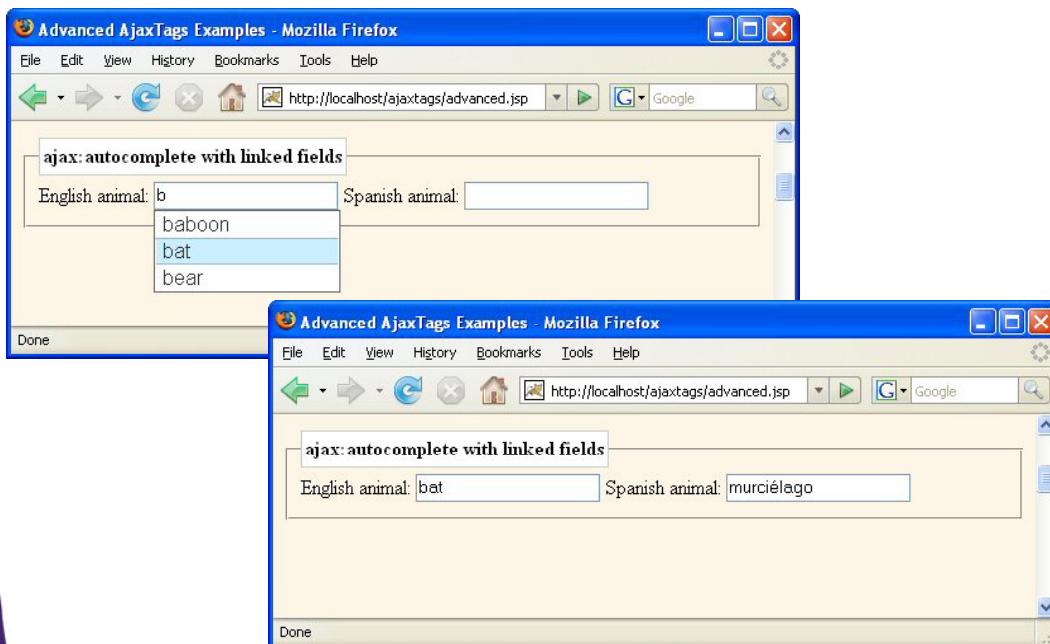
# Server-Side Code (Continued)

```
private static final String[][] animals =
{ {"aardvark", "aardvark"}, {"alligator", "cocodrilo"},
  {"antelope", "antílopo"}, {"baboon", "babuino"},
  {"bat", "murciélago"}, {"bear", "oso"}, {"cat", "gato"},
  {"camel", "camello"}, {"conch", "concha"}
};

private String makeAnimalList(String animalPrefix) {
    animalPrefix = animalPrefix.toUpperCase();
    AjaxXmlBuilder builder = new AjaxXmlBuilder();
    for(String[] animalPair: animals) {
        String englishAnimal = animalPair[0];
        String spanishAnimal = animalPair[1];
        if(englishAnimal.toUpperCase().startsWith(animalPrefix)) {
            builder.addItem(englishAnimal, spanishAnimal);
        }
    }
    return(builder.toString());
}
```

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# Results



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# ajax:updateField with postFunction

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## Basic Idea

- **Approach**
  - You list a regular JavaScript function as the value of the postFunction or preFunction attribute
    - Almost all tags support postFunction and preFunction
  - The postFunction fires after the server-side resource is finished
  - The preFunction fires just before the server-side resource is called
- **Main uses**
  - preFunction
    - To make an “I am working” message or image
    - Form field validation
  - postFunction
    - To highlight results or show a success message

# Script

- **scripts/postFunction.js**

- Note that it is using scriptaculous calls

```
function showConversionSuccess() {
  // Temporarily highlight Celsius and Kelvin fields
  new Effect.Highlight('c');
  new Effect.Highlight('k');
  // Turn on successMessage div, then fade it out.
  Element.show('successMessage');
  setTimeout("Effect.DropOut('successMessage');", 2000);
}
```

- **advanced.jsp**

```
<head>
...
<jsp:include page="/WEB-INF/includes/header.jsp"/>
<script src="${contextPath}/scripts/postFunction.js"
  type="text/javascript"></script>
<title>Advanced AjaxTags Examples</title>
</head>
```

Loads scriptaculous and Prototype.  
Defines contextPath variable.

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# JSP Example

```
<fieldset>
  <legend>ajax:updateField with postFunction</legend>
  <form>
    <label for="f">Enter temperature in Fahrenheit:</label>
    <input type="text" id="f"/>
    <input type="button" id="convertButton" value="Convert"/>
    <hr width="500" align="left"/>
    <label for="c">Temperature in Celsius:</label>
    <input type="text" id="c"/>
    <label for="k">Temperature in Kelvin:</label>
    <input type="text" id="k"/><p/>
    <div id="successMessage" style="display:none"
      class="temporaryMessage">
      Calculation complete</div>
  </form>
```

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## JSP Example (Continued)

```
<ajax:updateField
  source="f"
  target="c,k"
  baseUrl="{contextPath}/temperature-converter.ajax"
  action="convertButton"
  parameters="f={f}"
  parser="new ResponseXmlParser()"
  postFunction="showConversionSuccess"/>
</fieldset>
```

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## Server-Side Code

- **Same TemperatureConverter as in previous section**
  - Given a temperature in Fahrenheit, returns a list of corresponding temperatures in Celsius and Kelvin
  - Use of postFunction does not change how server-side resource works

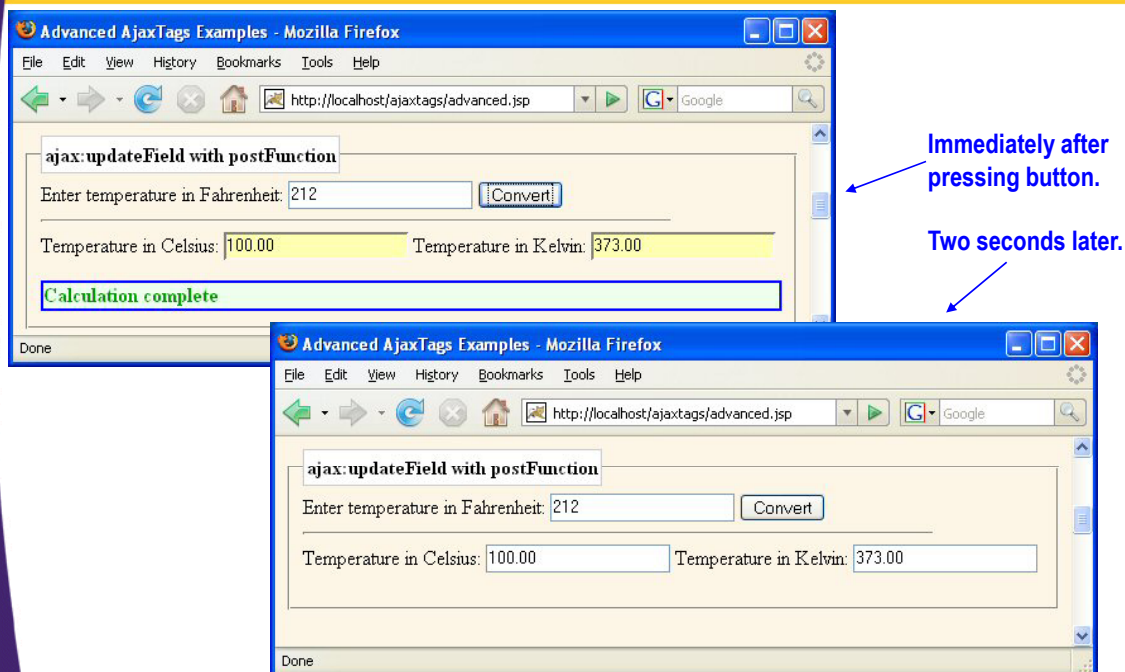
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# Style Sheet Entries

```
.temporaryMessage {  
  border:2px solid blue;  
  background-color:#eeffee;  
  color:#009900;  
  font-weight: bold;  
}
```

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# Results



Advanced AjaxTags Examples - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost/ajaxtags/advanced.jsp

ajax:updateField with postFunction

Enter temperature in Fahrenheit: 212

Temperature in Celsius: 100.00 Temperature in Kelvin: 373.00

Calculation complete

Done

Immediately after pressing button.

Two seconds later.

Advanced AjaxTags Examples - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost/ajaxtags/advanced.jsp

ajax:updateField with postFunction

Enter temperature in Fahrenheit: 212

Temperature in Celsius: 100.00 Temperature in Kelvin: 373.00

Done

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# ajax:tabPanel with errorFunction

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## Basic Idea

- **Approach**
  - You list a regular JavaScript function as the value of the errorFunction attribute
    - Almost all AjaxTags tags support errorFunction
  - If server-side resource returns an HTTP status code other than 200, the errorFunction is triggered
- **Main uses**
  - Error messages
  - Default values when server-side resource is unavailable

# Script

- **scripts/errorFunction.js**

```
function warn() {  
    alert("Server error!\n\n" +  
        "Did you forget to specify\n" +  
        "a default tab?");  
}
```

- **error.jsp**

```
<head>  
...  
<jsp:include page="/WEB-INF/includes/header.jsp"/>  
<script src="${contextPath}/scripts/errorFunction.js"  
    type="text/javascript"></script>  
<title>Advanced AjaxTags Examples</title>  
</head>
```

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# JSP Example

```
<fieldset>  
  <legend>ajax:tabPanel</legend>  
  <h2>Largest Cities in Selected Northeast States</h2>  
  <div class="tabPanelWrapper">  
    <ajax:tabPanel  
      panelStyleId="panel"  
      contentStyleId="content"  
      panelStyleClass="tabPanel"  
      contentStyleClass="tabContent"  
      currentStyleClass="currentTab"  
      errorFunction="warn">  
      <ajax:tab  
        caption="Maryland"  
        baseUrl="${contextPath}/population-finder.ajax"  
        parameters="state=Maryland,city=Baltimore"/>  
      <ajax:tab  
        caption="Virginia"  
        baseUrl="${contextPath}/population-finder.ajax"  
        parameters="state=Virginia,city=Virginia Beach"/>  
      ...  
    </ajax:tabPanel>  
  </div></fieldset>
```

Should say defaultTab="true".  
Without a default tab, tabPanel tries  
to load contextPath/null.

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# Server-Side Code

- **Same PopulationFinder as in previous section**
  - Given a state and a city, returns the population
  - Use of errorFunction does not change how server-side resource works

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# Results



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## ajax:htmlContent with Multiple Triggers

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## Basic Idea

- **Approach**
  - In previous section, we used `source` to designate button
    - Gives the ID of the element that will trigger the action
  - If you use `sourceClass` instead, then any element that has that CSS classname can be a trigger
    - The element must support onclick (push buttons, links, radio buttons, checkboxes, etc.)
- **Main use**
  - Multiple ways of triggering an action

# JSP Example

```
<fieldset>
  <legend>ajax:htmlContent with Multiple Triggers</legend>
  <form>
    <label for="state2">State:</label>
    <select id="state2">
      <option value="">Select State</option>
      <option value="Maryland">Maryland</option>
      ...
      <option value="New York">New York</option>
    </select>
    <label for="city2">City:</label>
    <select id="city2" disabled="disabled">
      <option value="">Select City</option>
    </select>
    <br/><hr align="left" width="500"/>
    <input type="button" value="Show Population" class="trigger"/>
    <a href="javascript://no-op" class="trigger">Show Population</a>
    <input type="radio" class="trigger"/>Show Population
    <br/><hr align="left" width="500"/>
    <span id="population"></span>
  </form>
```

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# JSP Example (Continued)

```
<ajax:select
  baseUrl="${contextPath}/city-finder.ajax"
  source="state2"
  target="city2"
  parameters="state={state2}"/>
<ajax:htmlContent
  baseUrl="${contextPath}/population-finder.ajax"
  sourceClass="trigger"
  target="population"
  parameters="state={state2},city={city2}"/>
</fieldset>
```

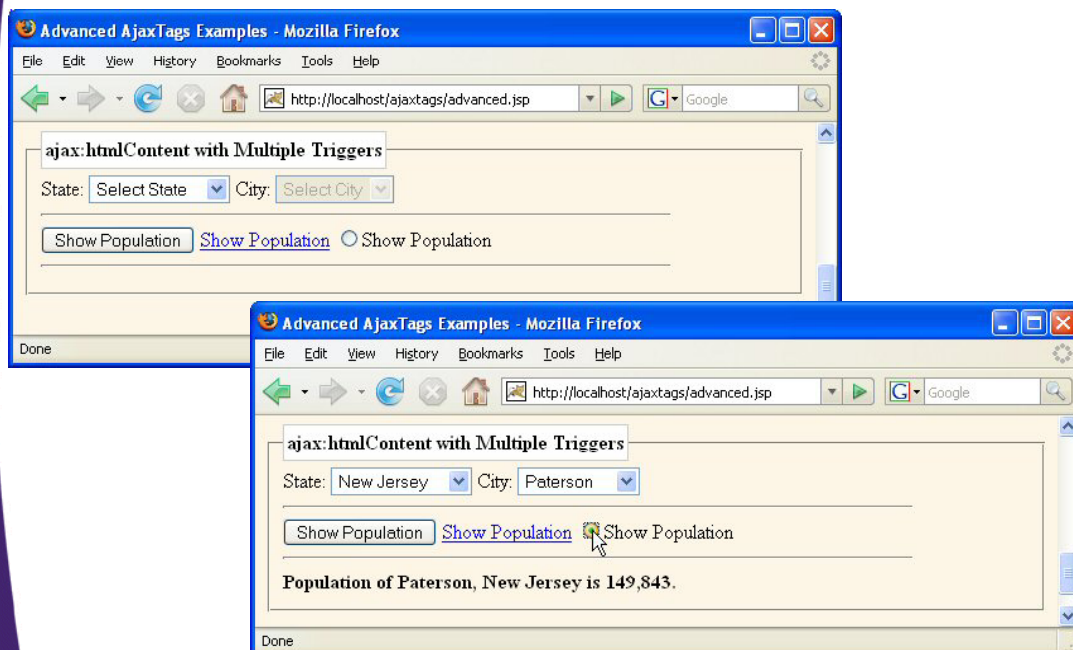
37

# Server-Side Code

- **Same PopulationFinder as in previous examples**
  - Given a state and a city, returns the population
  - Type of trigger does not change how server-side resource works

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# Results



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# Summary

- **indicator attribute**
  - Specifies region that displays temporarily while server-side resource runs
- **Returning a list for ajax:autocomplete with names different from values**
  - Names get shown in the dropdown list
  - Name gets inserted in source textfield
    - I.e., the textfield that actually had dropdown list
  - Value gets inserted in target textfield
- **preFunction and postFunctions attributes**
  - Arbitrary JavaScript that runs before or after server-side resource
- **errorFunction attribute**
  - Function that runs when server has error
- **sourceClass attribute**
  - Designates elements that trigger server-side resources

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## Questions?

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