COMP4711 Lab 7 (Fall 2014)
Dates: Oct 23, 2014

XML Processing

Background

You have the ferry schedule XML document from last week.
This week, we will process it to make a trip planner page.

This lab is to be done as your project pairs, and adds to your ongoing lab/assignment webapp project.

Preparation

Make a project for this lab. I suggest copying one of your earlier (working) projects for this (or even just using that one).

Copy/move your XML data into a /data folder inside the project.

Usecase Description

You are going to build a simple trip planner, to help a confused ferry traveller get from one port to another :)

It will be a two-parter ... a prompt for parameters (departure/destination), and then a display of the results (ferries).

Lab Tasks

1. You will need at least two view fragments, one for the prompt and one to display the results. The prompting view fragment should present a form with two comboboxes, populated by the controller to hold the available ports. You will need a submit button too!

   A crude design:

   ```
   Ferry Travel Planner

   Leaving from
   .......         v

   Destination
   ........      v

   <submit>
   ```

2. Your display view fragment should present the available ferry departures in a table, with 3 columns – departure time, arrival time, and stops. The stops will be a comma-separated list of the ports visited on the way to the requested destination, or “non-stop” if appropriate.

   A crude design:

   ```
   Your Custom Travel Plan

   From ... to ...

   Leaves      Arrives      Stops
   .....       .....        ..., ..., ...
   .....       .....        ..., ..., ...
   ```

3. Of course, if there is no ferry that suits the parameters, you will have to be creative, perhaps...

   ```
   From ... to ...
   Sorry, but you can't get there from here!
   ```

4. You will need a controller for this. I suggest using “planner”. Its index() will need to retrieve the port codes and names from your model, and pass them to the appropriate view fragment.
   Don't forget to add this page to your menu, to make it easy to test!

5. Your planner will need a method to extract form parameters, extract the appropriate data from the model, and pass whatever is needed on to the view. This method will need two parameters – one for the departure port code, and one for the destination port code.
   Your travel prompt should be mapped to this second method, in the form's action attribute.

6. Finally, you will need a model. It should build a SimpleXMLElement object, from your XML document, in its constructor.

7. Your model will need a method to traverse the DOM and retrieve or build an array of port codes and names.

8. Your model will also need a method, with two parameters (from, to), to build an array of departures that suit the parameters. This is the tricky part! Each of the departures should itself be an associative array, with suitable key/value pairs for departure time, arrival time, and a string with stops, per task #2. Make sure the time is formatted nicely.

   This method will need to traverse all sailings, looking for an origin or stop port matching the departure port specified. This trip segment will give you the departure time.

   Your code will than have to examine the sailing destination, which could be where you are going. If not, you will have to follow the remaining stops, looking for the destination port. That trip segment would give you the arrival time.

   If you can't reach the destination by this sailing, then don't add anything to the results array, and process the next sailing.

Help?

More resources are available...

1. W3schools has a SimpleXML tutorial, although it is rather simplistic.
2. A much better tutorial is found on IBM's DeveloperWorks.
3. Of course, there is always the SimpleXML reference on the PHP site itself, which includes a most awesome usage example. This might, in fact, be the best learning source for you!

Marking Guideline

This lab will be marked out of 10 ...

- 2 marks for your views
- 2 marks for your controller
- 4 marks for your model
- 2 marks for the elegance/readability of your code

Yes, I am being kind, and not having a challenge component ... special dispensation for midterm week.

Submission

- Your zipped NetBeans lab project, submitted to the provided dropbox
- Due by 21:30 Sunday Oct 26