Semi-structured Data and Adv. Databases (ECS650/ECS789): Coursework 1

Submission deadline: See QMPlus Announcement

Oct 2017

This coursework involves writing some XSL transformations (part A) and XQuery expressions (part B).

You can either submit the CW individually, or as a group (two or three students). Refer to Section C for submission guidelines, and maintain the naming conventions specified. Further details of the submission process will be posted as module announcements.

Preparation Download the file boats.xml from the QMPlus page (CW section).

A XSL Transformation (6 marks)

A.1

Create a file `boats_select.xsl` for selecting the boats with price less than 100,000 pounds, and length less than 40 feet.

Output: the boat elements (with sub-elements) that match the condition.

A.2

Copy the XSL file (name it `boats_select_html.xsl`) and modify the stylesheet such that it generates the result in HTML.

```
<html>
<head>Boat Listing</head>
<body>
        <p>Your search was: price < 100000, length < 40 feet.</p>

        <br/>

        <table>
        <tr>
        <td>Blue Water</td>
        <td>Beneteau</td>
        <td>70000 pounds</td>
```

```
        <!-- a table cell per feature of the boat -->
        </tr>
        <!-- a table row per boat -->
        </table>
</body>
<html>
```

A.3

Modify your script such that it adds information about the average price and average length of boats:

```
<p>avg price: all boats: 90000</p>
<p>avg price: relevant boats: 70000</p>
<p>avg length: all boats: 40.5</p>
<p>avg length: relevant boats: 36</p>
```

Demonstrate the usage of XSL variables for solving this task.

A.4

Split your code over two stylesheets: boats_select.xsl and boats_xml2html.xsl. The first script selects the boats, and the second script reads the output of the first script and generates the HTML representation.

What are the advantages/disadvantages of distributing the code over two stylesheets?

B XQuery (4 marks)

B.1

Provide the XQuery script to select the boats with price and length as described for the XSL task.

B.2

Provide the XQuery script producing the HTML output as described above.

C Submission

Make sure your submission shows your name and student id. For group submissions, please list the names and id's of the group members. Remember that all students of one group must be either UG or PG.

Submit your submission as an archive containing the following files:

- `CW-1.pdf`: title page with student name(s) and id(s);

  For each of the tasks (A.1, A.2, A.3, A.4, B.1 and B.2), provide a concise statement (one to three sentences) explaining the solution, and providing an answer where required (A.4).

  The explanation should describe the status of the solution (works 100%, something works, could not make it work because ...).

- `boats_select.xsl`
- `boats_select_html.xsl`
- `boats_xml2html.xsl`
- `boats_select.xquery`
- `boats_select_html.xquery`

Additionally, you must submit the outputs generated by all the files listed above.

- `output/xsl/boats_select.xml`
- `output/xsl/boats_select.html`
- `output/xsl/boats_select_xml2html.html`
- `output/xquery/boats_select.xml`
- `output/xquery/boats_select.html`

Make sure your submission follows the naming conventions.