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

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A XSL Transformation (6 marks)

A.1
Solution status: works 100%
Input: output/xsl/boats_select.xml
Output: result_a.1
Explanation: Starting from the "/" root element, I applied the subset using <xsl:if> element to match the data, which price < 100000 and the length < 40.

A.2
Solution status: works 100%
Input: output/xsl/boats_select.html
Output: result_a.2
Explanation: First changed the logical operators to XSLT-like. Then in tags, describing rows added the XSLT-description to subset the needed data.

A.3
Solution status: works 100%
Input: boats_select_html_average.xsl
Output: output/xsl/boats_select_xml2html.html
Explanation: Added after the main representation of the data logic for counting requested indexes. I used valuable $relevantBoats just once because it is used more than one time in a code. In other cases I needed to count something just once, so I think the use variables and allocation of memory is not necessary.

A.4
Solution status: works 100%
Input: boats_select.xsl and boats_xml2html.xsl
Output: output/xsl/boats_select_xml2html.html
Explanation: Parsed the output of the file output/xsl/boats_select.xml so it has HTML-like view using <xsl:value-of> element.
Answer:

Advantages:
• Very similar to the MVC (Model–view–controller pattern), which allows to maintain low coupling among data model and it's view. I think it is the beginning of the idea of supporting CSS files and HTML files as well. All these concepts make maintenance of the total project easier in theory. Changes affecting just the representation of the data or the data subset itself become easier to make.
• Similarity to the the above-mentioned concepts make it easier for new developers to understand the purpose of each document.
• Possibility to provide alternate representation for the same data (first stylesheet).

Disadvantages:
• Due there is no controller, this distribution requires developers to maintain the consistency and to be "controller" himself/herself. Some dependency issues might appear because this style makes modification to one part affect the other.
• Understanding a flow of scripts is not very obvious. It is little bit of complex to implement and not suitable for small level projects.
• To much to write formal part comparing to logical executable part for small projects.

B XQuery (4 marks)

B.1
Solution status: works 100%
Input: boats_select.xquery
Output: output/xquery/boats_select.xml
Explanation: Started selecting the data from <boats> tag in boats.xml document and in particular in the part of /boats/boat, created $x variable to store the data which comply with the filter (if statement) described I where statement.

B.2
Solution status: works 100%
Input: boats_select_html.xquery
Output: output/xquery/boats_select.html
Explanation: Added HTML-like formatting to place subset of the data to particular row of the table.