CSE 4/560 Project 3: XML and XQuery

Due 23:59 12/4/2019 EST

November 24, 2019

1 Submission

*Failure to comply with the submission specifications will incur penalties for EACH violation. The project is an **INDIVIDUAL** project: copying, collaboration or cooperation will be considered violations of academic integrity.*

1.1 What to submit

A zip file has to be submitted through the 'submit_cse460'/'submit_cse560' submit script by 12/4/2019 11:59PM EST. **ONLY** the zip extension will be accepted.

1.2 Zip file naming convention

Write your *ubit_proj3* (**NO SPACE!**) for the filename, e.g. *jsmith_proj3.zip*, where *jsmith* is the ubit.

1.3 Sub-structure of zip file

- On unzipping the zip file, there should be a folder named with *ubit_proj3*.
- Under the folder *ubit_proj3*, there should be a .txt file named *ubit_proj3*.txt, this file contains your answers for all of the questions in this project.

2 Problem 1 XQuery

You are given the following DTD data format A that describes the information about authors and books. Assuming you have an XML document called *books.xml* that is valid against the given DTD, write the following queries in your solution file, use XQuery comments to separate your answers, e.g., (: answer for 1.1 :). Use eXistDB or BaseX to test and verify your answers, you **must** use **/db/books.xml** as the path of the file *books.xml*. The file *books.xml* will be posted separately.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE biblio[
<!ELEMENT biblio (author*)>
<!ELEMENT author (name,book*)>
<!ELEMENT name (#PCDATA)>
<!ELEMENT book (title, price)>
<!ELEMENT title (#PCDATA)>
<!ELEMENT price (#PCDATA)>
<!ATTLIST book year CDATA #REQUIRED>
]>
```

2.1 (3 pts) Find the names of all Jeff Ullman's co-authors and list them together with the titles of books that were co-authored.

2.2 (3 pts) Return all the authors whose average book price was at least twice the average book price over all books.

2.3 (9 pts) Define a DTD for an equivalent DTD data format B which stores the same information as A and in which the authors are listed under their books. Write an XQuery query whose input is an XML document valid with respect to the DTD A and whose output is another XML document valid with respet to B.