CSE 4/560 Project 3: XML and XQuery

Due 23:59 05/11/2019 EST

April 30, 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 05/11/2019 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

Given the following DTD that describes the information of employees of a company:*ename* is the employee name, *department* indicates the departments of an employee, *name* is the name of the department, *salary* is the salary of the employee in this department (an employee can be in multiple departments with separate salaries in each department). Please first understand the DTD. Assuming you have an XML document called *emps.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/emps.xml"** as the path of the file emps.xml.

```
<!DOCTYPE emps[
 <!ELEMENT emps(employee*)>
 <!ELEMENT employee(department*)>
 <!ATTLIST employee ename CDATA #REQUIRED>
 <!ELEMENT department (name, salary)>
 <!ELEMENT name (#PCDATA)>
 <!ELEMENT salary (#PCDATA)>
 ]>
```

2.1 (3 pts) Find the names of all the employees of the departments Sales or IT and their salaries in those departments.

2.2 (4 pts) Find the names of the departments that have the average salary greater than 5000. (Note your result should not contain duplicate department names.)

2.3 (8 pts) Write an XQuery query whose input is an XML document valid with respect to the given DTD and whose output is an equivalent XML document in which the employees and their salaries are listed under their departments. Define a DTD for that format.