CS 548—Fall 2018
Enterprise Software Architecture and Design
Assignment Three—XQuery

In this assignment, you are given an XML schema for a simple medical information system. Unlike the previous assignment, which defined treatments independently of patients and doctors, this schema represents the one-to-many relationship from patients to treatments by embedding treatments as child elements of patient elements. Each treatment element repeats the information about the provider[1] (NPI, name). The schema defines a root element whose content is a list of patient elements. You should do the following.

First, create a sample data file matching the schema. You could generate random data using the Oxygen XML Editor, but please choose meaningful names to make it more interesting.

Second, define an XQuery function `getProviderInfo(database)` that constructs a new database from a Clinic database. The clinic database is the argument to the function (An XML element that contains a list of patient elements). The output of this function lists, *for each provider*, a list of all patients that that provider is currently treating (patient id and name), and for each such patient a list of the treatment records (drug, surgery or radiology) that the provider is administering to that patient.

You should use the Oxygen XML Editor to edit and test your solutions[2]. Put your Xquery code in a file called "`testing.xq`". Record a video demonstrating your testing of your code, running it on the sample data you defined in the first part of the assignment. Run your test program using the Oxygen Xquery Debugger, showing the output pane after running the query.

Make sure that your name appears at the beginning of the video. For example, display your name at the start of testing output. *Do not provide private information such as your email or cwid in the video*. Be careful of any "free" apps that you download to do the recording, there are known cases of such apps containing Trojan horses, including key loggers.

Your solution should be uploaded via the Canvas classroom, as a zip file. This zip file should have the same name as your Canvas userid. It should unzip to a folder with this same name, which should contain the files and subfolders with your submission.

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[1] There could be good reason for structuring the database this way, as we will see when we look at NoSQL databases.

[2] You will need to use the Saxon EE runtime, which enables XML Schemas, in order to be able to use "import schema" in your XQuery code.

It is important that you provide a document that documents your submission, included as a PDF document in your submission root folder. Name this document README.pdf. ***This document should provide your XQuery code, your test data, and your output from testing, and explain where to find the video of your testing for your submission*****.**