CSE 560: Project #3 (due 05/01/06)

Problem 1 (60 pts)

Suppose you have to represent the information about a tree in an XML database. Each node in the tree has a name (unique) and a textual description. Do not assume any bound on the height of the tree. On the other hand, each node can have at most 3 children. Each node has a different name.

1. Define the schema of the XML database containing the tree information using (a) DTDs, and (b) XML Schema.
2. Give an example of a document instance which is valid under the DTDs and the XML schema above.
3. Write the following queries in XQuery:
   (a) *find the names of the first 5 descendants of Joe (in document order).*
   (b) *find the names of the ancestors of Joe who are also the ancestors of Jim.*
   (c) *find all the nodes in the tree that have at least 6 descendant nodes.*

Problem 2 (40 pts)

Propose how to represent the above database in the relational model in such a way that the above queries can be formulated in SQL *without recursion.* Write the appropriate SQL queries.

Submit everything in electronic form using `submit_cse560`.