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.