CS510 Principles of Database Systems
Fall 2008
Homework 1
Assigned: Wednesday Oct. 1, 2008
Due: Wednesday Oct. 8, 2008 at 5:15PM (beginning of class)
You can turn this in on paper during the class or by e-mail to Lois Delcambre at lmd@cs.pdx.edu

1. Do Exercise 4.2 in the CS586 textbook by Ramakrishnan and Gehrke. 14 points

2. Do Exercise 4.4 from the CS586 textbook by Ramakrishnan and Gehrke but only for query number 1 and query number 5 shown in Exercise 4.4. 10 points

3. Write query number 1 and query number 5 (from Exercise 4.4, listed in problem 1 above) in tuple relational calculus using the syntax from the Ramakrishnan and Gehrke textbook. 10 points

4. Write query number 1 and query number 5 (from Exercise 4.4, listed in problem 1 above) in domain relational calculus using the syntax from the Levene and Loizou textbook. 10 points

5. Read Exercise 3.4 in the Levene and Loizou textbook.
   a. Define two relation schemas that are appropriate for the query $r \div^g s$ (the generalized divide operator) and provide sample data. Note: you should choose meaningful names for your relations (such as student or faculty or course or project or team, … or whatever. And you should choose meaningful names for the attributes for your relations.
   b. Show the query answer for your sample data for the generalized divide operator acting on your two relations. That is, show the query answer for the query $r \div^g s$ (if your tables were named r and s). Make sure that your sample data has some data (in the X attributes, assuming that r has schema XY and s has schema YZ) from r that DOES appear in the final query answer. Also make sure that your sample data has some data (in the X attributes) from r that DOES NOT appear in the final query answer.
   c. Explain what your query computes, in English.