CS 210 Spring 2012
Module 7
Recursive Relational Operations

In module 6 you implemented the 6 basic operations that can be performed on relational datasets. You will note that the end product of all 6 of these operations is similar to a table in that the result has both fields and rows of data, and so it makes sense that we might be able to perform relational operations on the results of relational operations.

In this module you will extend the functionality of module 6, so that you can make recursive, nested commands on data. Some examples of statements might be

select (project emp over name, sal, id) where sal < 5000;
join (minus a and b) and (intersect c and (select (union m and n) where x = 300)));

The general idea is that you will start with the most nested set of parentheses, and work out until you get to the final, outermost statement, at which time you will print out the final result and you are done.

HINTS:

1. Restructure your table class so you have 6 methods, one for each of the commands implemented in module 6 – each of these should return a DataSet. Extract an interface from the table class including these 6 methods. Implement the interface on Dataset.

2. Working with nested parentheses in Regular Expressions can be a little tricky, but there are many solutions that can be used. I worked up a possible solution and have some ideas in the attached Java file (but you certainly don't need to used my ideas if you have some of your own).