Homework Project 2

Given 10/11/2012, Due 10/25/2012

Create a two-dimensional segment tree that supports stabbing queries among a set of rectangles.

We need a structure `struct rectlist`, with components `struct rectlist *next` and `int left, right, lower, upper`; this describes a rectangle with lower left corner `(left,lower)` and upper right corner `(right, upper)`. We interpret the rectangle as half-open, so the right and top sides are not contained in it
($[$`left`, `right`$[\times[$`lower`, `upper`$[$).

Your structure should support the following operations

- `stree_t * create_2dstree(struct rectlist *data)` creates a 2d segment tree out of a list of axis-aligned rectangles.
- `struct rectlist *query_2dstree(stree_t *tree, int x, int y)` returns the list of all rectangles that contain the point `(x,y)`

Submit your code by e-mail to `peter@cs.ccny.cuny.edu`. Test it before submission. Do not share code with other students.