COMP260 Spring 2014: Lecture 5 Homework

This homework is due Thursday, February 27th at the beginning of class.

Problem 1. Show that no priority queue data structure will allow Dijkstra's singlesource shortest path algorithm to run in $o(|V| \log |V|)$ time. Hint: sorting n integers takes $\Omega(n \log n)$ time.

Problem 2. Starting with a completely balanced splay tree whose elements are the integers 1, 2, ..., n, design a sequence of FIND(i) calls to the splay tree that results in the tree being a left spine (i.e. tree where no node has a right child). What operations increase the "messiness" of the splay tree?