

## 6.851 ADVANCED DATA STRUCTURES (SPRING'12)

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Problem 2      *Due: Thursday, Mar. 1*

Be sure to read the instructions on the assignments section of the class web page.

**Range tree construction.** Recall that in class we presented the range tree and the layered range tree for answering orthogonal range trees. However, we did not describe how to construct them efficiently.

1. Describe how to construct a  $d$ -dimensional range tree on  $n$  given points in  $O(n \lg^{d-1} n)$  time.
2. Describe how to construct a  $d$ -dimensional layered range tree on  $n$  given points in  $O(n \lg^{d-1} n)$  time.