6.851 ADVANCED DATA STRUCTURES (SPRING'07)

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Problem 9   *Due: Monday, Apr. 30*

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

Cache Oblivious Median Finding.   Describe a cache-oblivious algorithm that, given an array of N elements, not necessarily in sorted order, finds the kth smallest element in $O(\lceil N/B \rceil)$ time. Notice that if $k = N/2$, then the kth element is the *median*.

It might be helpful to review the standard linear-time algorithm for median finding (in CLRS, for example).