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

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