Cache-oblivious median finding. Given an unordered array of $N$ elements, develop and analyze a cache-oblivious algorithm to find the median of the array in $O(\lceil N/B \rceil)$ memory transfers. In your solution, you may assume knowledge of the standard median-of-medians deterministic selection algorithm.

Cache-oblivous queue. Develop and analyze a cache-oblivious FIFO queue. Both the enqueue and the dequeue operation should take $O(1/B)$ amortized memory transfers. Your data structure should only use external memory indices in $\{0, 1, \ldots, O(N)\}$, where $N$ is the maximum number of elements stored in the queue at once.