Be sure to read the instructions on the assignments section of the class web page. Remember to keep your solutions to one page!

**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 $O([N/B])$ 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.