



3. Let  $A$  be a list of  $n$  (not necessarily distinct) integers. Describe an  $O(n)$ -algorithm to test whether any item occurs more than  $\lceil n/2 \rceil$  times in  $A$ .

4. (CLRS 9.3-7) Describe an  $O(n)$  algorithm that, given a set  $S$  of  $n$  distinct numbers and a positive integer  $k \leq n$ , determines the  $k$  numbers in  $S$  that are closest to the median of  $S$ .