Assignment 12

C-4.11 Suppose we are given an *n*-element sequence S such that each element in S represents a different vote in an election, where each vote is given as an integer representing the ID of the chosen candidate. Suppose we know who the candidates are and the number of candidates running is $k < n$. Describe an $O(n \log k)$-time pseudo code algorithm for determining who wins the election.

1. Suppose we are given an *n*-element list S such that each element in S represents a different vote in an election, and where each vote is given as an integer representing the ID of the chosen candidate. Describe an O(n) pseudo code algorithm for determining who wins the election (turn in a pseudo-code version as well). This clearly needs to use a hash table based Dictionary, i.e., the HT_Dictionary class. Your code goes in the file HW12_VotingHelpers.js. There is a comment in the functions that you are to write that states what the function is to do; these are building blocks showing different ways of solving this problem, e.g., differing inputs (array vs. Sequence) and different approaches, e.g., using a Dictionary. For example, LookupTable (LookupTable.js), unordered dictionary (HT_Dictionary.js), Priority Queue (PriorityQueue.js).