

## 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 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. Describe an  $O(n)$  pseudo code algorithm for determining who wins the election.
2. Implement #1 above in JavaScript using the HT\_Dictionary.js file provided. I have also provided a function `genDat(n, k)` that generates random data so you can test your function many times with different winners and even sometimes a tie will have to be handled. The function that you are to implement is `findWinners(dat)` which takes the data generated by `genDat` and determines which candidate wins the election.