9/25/23

HW 2

Question 3:

- Input A: a list of IDs
- Assumption: there exists an ID that appears strictly more than 50% of the times in A (so there wont be two max values)
- Output: the ID that appears the most
- Design an efficient algorithm that identifies the output ID
- You need to explain why your algorithm works and why you think its correct

>50% algorithm

- Starts with a hash map
- Goes through the list of ids
- Sets the value as the id and the key as the amount of times it appears
- Checks which key is the greatest
- Returns the value associated with that key

int counter = 0

- Set all the keys in an array, using quicksort or timSort
- sort the array
- return the value associated with the last key value in the array (keys.size() - 1)
- runtime of O(nlogn)