Questions

1. Plot the line chart for each of the following functions in a single plot, for various values of n.
   (a) $logn$
   (b) $log_2 n$
   (c) 3n
   (d) $nlogn$
   (e) n^2
   (f) 2^n
   (g) n!
2. Arrange the functions in question 1, in the increasing order of their growth rate. *[This is a theory question, write your answer in a text cell.]*
3. Implement algorithm with $O(n^2)$ complexity for checking whether the elements in a list are distinct or not.
4. Solve the leetcode problem 169.
   Given an array nums of size n, return the majority element. The majority element is the element that appears more than n / 2 times. You may assume that the majority element always exists in the array.
5. Solve the leetcode problem 215.
   Given an integer array nums and an integer k, return the kth largest element in the array.