Homework 4:

1. What is the time complexities of hierarchical clustering when we use the following three criteria to merge clusters?
   a) single
   b) average
   c) max

2. Let us assume an outlier detection algorithm that finds the point with the largest nearest neighbor distance as the outlier.
   a) Write a pseudo-code for this algorithm.
   b) What is the complexity of the algorithm? Can you improve it?
   c) Write a pseudo-code of an algorithm that outputs the top-K points in descending order of their nearest neighbor distance? What is the complexity of your algorithm?