CSC 317 & INF 307

Lab 2 – Problem Analysis Review

Discuss and solve the following task in Java (for IT students) and Python (for CS students)

1. Given an array of integers *arr* and an integer *k*, find the *k*th largest element.

2. Given two strings s1 and s2, write a function that checks if they are anagrams. Two strings are anagrams if they are made of the same characters with the same frequencies. E.g., danger and garden; salesmen and nameless

3. You have been given the arrays *gas* and *cost* that represent the amount of gas at station *i* and the cost of moving from station *i* to *i+1*. Assuming we have a circular list of gas stations, where we can go from a station *i* to the station *i+1*, and the last one goes back to the first one, find the index of the station *x* from which it is possible to traverse all the stations and go back to station *x* without running out of gas.

   Assumptions

   - We can only move forward
   - The gas tank starts empty
   - gas[i] represents the amount of gas at station i
   - cost[i] represents the cost to go from the station i to the next one
   - If the station we are searching for does not exist, return -1

   Example

   If gas = [1,5,3,3,5,3,1,3,4,5] and cost = [5,2,2,8,2,4,2,5,1,2], station at index 8 is the answer