Lab Assignment
Week-7 Lab A
Practice Lab for T1

1. Suppose there is a circle. There are N petrol pumps on that circle. You will be given two sets of data.

   1. The amount of petrol that every petrol pump has.

   2. Distance from that petrol pump to the next petrol pump.

   Find a starting point where the truck can start to get through the complete circle without exhausting its petrol in between.

   Note : Assume for 1 liter petrol, the truck can go 1 unit of distance.

   Example 1:

   Input:
   N = 4
   Petrol = 4 6 7 4
   Distance = 6 5 3 5
   Output: 1
   Explanation: There are 4 petrol pumps with
   amount of petrol and distance to next
   petrol pump value pairs as {4, 6}, {6, 5},
   {7, 3} and {4, 5}. The first point from
   where truck can make a circular tour is
   2nd petrol pump. Output in this case is 1
   (index of 2nd petrol pump).

2. You are given two arrays X and Y of N elements denoting N points on the 2D plane. You are given another array A of N elements denoting the values associated with each point.

You have to find the minimum integer value radius r of a circle with the center (0,0) such that the sum of all the values of nodes within the circle or on the circle is greater than or equal to an integer p.

If any such r does not exist, print -1.

Notes

- Assume *1*-based indexing.
- For a circle with radius *0,* the center is said to lie inside that circle.

Input

- The first line contains an integer T denoting the number of test cases.
- For each test case:
    - The first line contains two space-separated integers N, p.
    - The second line contains N space-separated integers denoting the array X.
    - The third line contains N space-separated integers denoting the array Y.
    - The fourth line contains N space-separated integers denoting the array A.

Output

For each test case in a new line, print the minimum integer value radius r of the required circle.

3. It's Lolympics 2016 right now, and we all know who's the best player there right now: Kalyani! Obviously, he has a huge female fan following and he has to make sure they are all happy and rooting for him to win the gold medals.

But with fan following comes arrogance and lack of time. Thus, he has sufficient time to interact with atmost T of his fans. Each fan is defined by two parameters : Name and Fan Quotient. The name defines the name of the fan, while the fan quotient is a measure of the fan's devotion towards Kalyani. Higher the fan quotient, greater is the devotion. Kalyani now wants to meet T of his fans. While selecting the fans he wants to meet, he wants to make sure that a fan with a higher fan quotient should be given a chance in favour of those with lesser fan quotient. In case of ties, he sorts their name lexicographically and chooses the lexicographically lesser named fan.

Given details of N fans, can you help out Kalyani by giving him a list of fans he would be interacting with?

Input Format :

The first line contains N and T, the number of fans and the maximum number of fans Kalyani can meet. Each of the next N lines contains a string and an integer separated by a space. The string denotes the name of the fan while the integer depicts the fan quotient.

Output Format :

Output T lines, each containing the name of the fans selected. Fans with higher fan quotient should be outputted first and in case of a tie, the lexicographically minimum name should come first.

Constraints :

1≤T≤N≤1000

1≤lengthofname≤20

1≤fanquotient≤109

Name would only consist of characters in set [a-z]. It is not guaranteed that the names are distinct.