Q1. Sort an Array using recursion

Sorting an array can be done using an iterative method. We have also learned divide and conquer methods of sorting an array using merge sort and quick sort. But in this question, you must sort an array using simple recursion. You should not care about the time complexity of this question. The goal is to teach you how you can think in terms of recursion to solve a given problem.

You must not use min(), max(), sort() functions of python. if needed you can write your own min() or max() function, again in recursive manner. You must not use merge sort or quick sort algorithm. In your code, you must not have any loops, it should be completely loop free.

Both the input and output are lists of integers, and they can be empty.

Examples

Input: [8,9,10,2,4,5]	Output: [2,4,5,8,9,10]
Input: [2,4,5,1,11,22,45]	Output: [1,2,4,5,11,22,45]
Input: [4,1,2,3,4,90,0]	Output: [0,1,2,3,4,4,90]

Q2. Throw the Handkerchief

This is a traditional handkerchief game, where kids sit in a circle and pass on the handkerchief to each other.

The rules of the game are slightly modified. There are n kids in a circle waiting to catch the handkerchief. The counting begins from some point in the circle and proceeds in the same direction. A kid will throw the handkerchief to the **kth** number of kid every time. After throwing the handkerchief he will be out of the game. As a result, the circle will become smaller and smaller. This game will be over when only one kid is left in the circle. That kid will be the winner of the game. If you are playing this game together with these kids, your task is to choose the place in the initial circle so that you are the last one remaining.

For ex: if n=6, k=2 then your place should be 5. First, the kid in 2nd position will leave, then 4th will leave, then 6th will leave, 3rd will leave, 1st will leave. In the end kid in 5th position will become a winner. So your position should be 5th in the circle.

Input should be an array of integers, and output should be an integer.

Hint: formulate this problem as a recursive problem.

| function **hankerchief(n,k)** |
| that returns the place you should take to become a winner |

Examples

Input: 6,2	Output: 5
Input: 5,2	Output: 3