Problem I. Tit for Tat

Time limit 1000 ms
Mem limit 262144 kB

Given an array a of length n, you can do at most k operations of the following type on it:

- choose 2 different elements in the array, add 1 to the first, and subtract 1 from the second. However, all the elements of a have to remain non-negative after this operation.

What is lexicographically the smallest array you can obtain?

An array x is lexicographically smaller than an array y if there exists an index i such that $x_i < y_i$, and $x_j = y_j$ for all $1 \le j < i$. Less formally, at the first index i in which they differ, $x_i < y_i$.

Input

The first line contains an integer t ($1 \le t \le 20$) – the number of test cases you need to solve.

The first line of each test case contains 2 integers n and k ($2 \le n \le 100$, $1 \le k \le 10000$) — the number of elements in the array and the maximum number of operations you can make.

The second line contains n space-separated integers $a_1, a_2, \ldots, a_n$ ($0 \le a_i \le 100$) — the elements of the array a.

Output

For each test case, print the lexicographically smallest array you can obtain after at most k operations.

Sample 1

Input	Output
2 3 1 3 1 4 2 10 1 0	2 1 5 0 1

Note

In the second test case, we start by subtracting 1 from the first element and adding 1 to the second. Then, we can't get any lexicographically smaller arrays, because we can't make any of the elements negative.