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B. Equal XOR

time limit per test: 1 second memory limit per test: 256 megabytes input: standard input output: standard output

You are given an array a of length 2n, consisting of each integer from 1 to n exactly **twice**.

You are also given an integer k ($1 \le k \le \lfloor \frac{n}{2} \rfloor$).

You need to find two arrays l and r each of length $2\mathbf{k}$ such that:

- l is a subset † of $[a_1, a_2, \dots a_n]$
- r is a subset of $[a_{n+1}, a_{n+2}, \dots a_{2n}]$
- bitwise XOR of elements of l is equal to the bitwise XOR of elements of r; in other words, $l_1\oplus l_2\oplus\ldots\oplus l_{2k}=r_1\oplus r_2\oplus\ldots\oplus r_{2k}$

It can be proved that at least one pair of l and r always exists. If there are multiple solutions, you may output any one of them.

 † A sequence x is a subset of a sequence y if x can be obtained by deleting several (possibly none or all) elements of y and rearranging the elements in any order. For example, [3,1,2,1],[1,2,3],[1,1] and [3,2] are subsets of [1,1,2,3] but [4] and [2,2] are not subsets of [1,1,2,3].

Input

Each test contains multiple test cases. The first line contains a single integer t ($1 \le t \le 5000$) — the number of test cases. The description of the test cases follows.

The first line of each test case contains 2 integers n and k ($2 \le n \le 5 \cdot 10^4$, $1 \le k \le \lfloor \frac{n}{2} \rfloor$).

The second line contains 2n integers a_1, a_2, \ldots, a_{2n} $(1 \le a_i \le n)$. It is guaranteed that every integer from 1 to n occurs exactly twice in a.

It is guaranteed that the sum of n over all test cases does not exceed $5 \cdot 10^4$.

Output

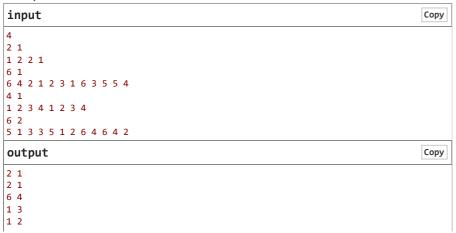
For each test case, output two lines.

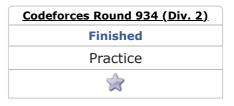
On the first line of output, output 2k integers l_1, l_2, \ldots, l_{2k} .

On the second line of output, output 2k integers $r_1, r_2, \ldots r_{2k}$

If there are multiple solutions, you may output any one of them.

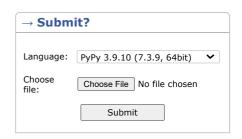
Example





→ Virtual participation





→ Last submissions		
Submission	Time	Verdict
<u>251747673</u>	Mar/16/2024 18:31	Accepted
251746590	Mar/16/2024 18:29	Wrong answer on pretest 1
251739440	Mar/16/2024 18:19	Wrong answer on pretest 2





1 2 5 1 3 3 6 4 2 4

Note

In the first test case, we choose l=[2,1] and r=[2,1]. [2,1] is a subset of $[a_1,a_2]$ and [2,1] is a subset of $[a_3,a_4]$, and $2\oplus 1=2\oplus 1=3$.

In the second test case, $6 \oplus 4 = 1 \oplus 3 = 2$.

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