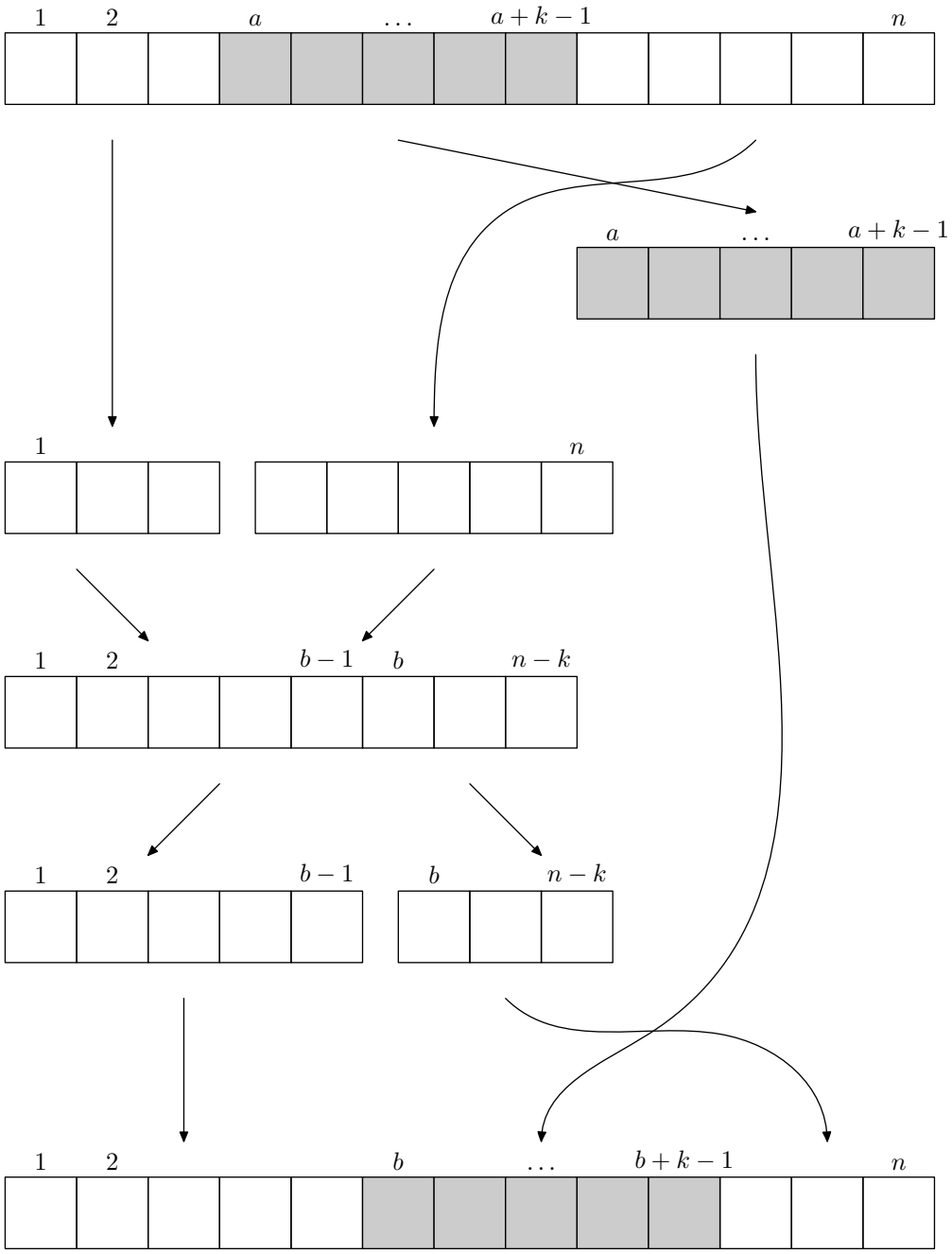
Problem L. Permutation Transformation

Time limit: 1 second
Memory limit: 512 megabytes

Fedor works in the department of permutation transforming. Today Fedor should solve the following problem: he needs to transform the permutation $[p_1, p_2, \ldots, p_n]$ of integers $1, 2, \ldots, n$ to the permutation $[q_1, q_2, \ldots, q_n]$ using at most n^3 k-transfer operations.

Consider an array of length n. The k-transfer operation with the parameters (a, b) is defined as follows: a segment of k consecutive elements starting with an element at index a is cut away from the array and inserted back starting with the index b.



More formally: consider an array $[t_1, t_2, \ldots, t_n]$ and two integers a and b ($1 \le a, b \le n-k+1$). Let's create the temporary array $[r_1, r_2, \ldots, r_{n-k}]$, consisting of the numbers $[t_1, t_2, \ldots, t_{a-1}, t_{a+k}, t_{a+k+1}, \ldots, t_n]$. Then the result of the k-transfer with parameters (a, b) for an array t is an array, consisting of the numbers $[r_1, r_2, \ldots, r_{b-1}, t_a, t_{a+1}, \ldots, t_{a+k-1}, r_b, r_{b+1}, \ldots, r_{n-k}]$.

Fedor doesn't know how to solve the task, so he asks you to help him!

You are to solve the problem for t test cases.

Input

The first line contains a single integer t ($1 \le t \le 100$) — the number of test cases.

Each test case consists of three lines. The first line contains two integers n and k ($1 \le k \le n \le 100$).

The second line contains n different integers $p_1, p_2, \ldots, p_n$ ($1 \le p_i \le n$) — the permutation p.

The third line contains n different integers $q_1, q_2, \ldots, q_n$ ($1 \le q_i \le n$) — the permutation q.

It's guaranteed that the sum of n over all test cases doesn't exceed 100.

Output

Print the answer for each test case. Output your answer for a single test case in the following format.

If it's impossible to obtain a permutation $q_1, q_2, \ldots, q_n$ from a permutation $p_1, p_2, \ldots, p_n$ using k-transfers, print a single line consisting of the word "NO".

Otherwise, print "YES" at the first line.

The second line must contain a single integer m — the number of k-transfers performed to obtain the permutation q from the permutation p ($0 \le m \le n^3$). Note that you don't need to minimize m. It's guaranteed that if the permutation q can be obtained from the permutation p using k-transfers, then there is a solution that requires at most n^3 operations.

Each of the following m lines should contain two integers — parameters a and b for the corresponding k-transfer.

Example

standard input	standard output
3 2 1 2 1 2 1 4 2 1 2 3 4 1 2 4 3 3 2 2 1 3 1 3 2	YES 0 NO YES 2 1 2 1 2

Note

In the third test case there is another way to obtain a permutation q from a permutation p — a single k-transfer with the parameters $a = 2$, $b = 1$.