Problem K. Organize the Bookshelf

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	1024 megabytes

Given two sequences a and b of length n, you may perform the following operation on the two sequences at most $3n$ times:

Choose any integers i and j ($1 \le i, j \le n$), then swap a_i and b_j. The cost of this operation is $|i - j|$.

Find a sequence of operations that makes a and b equal while minimizing the total cost. If it is impossible to make the two sequences equal by the operations above, output "-1".

Input

Each test file contains multiple test cases. The first line contains the number of test cases T ($1 \le T \le 2 \times 10^5$). The description of the test cases follows.

The first line of each test case contains an integer n ($1 \le n \le 2 \times 10^5$), denoting the length of the sequences.

The second line contains n integers $a_1, a_2, \ldots, a_n$ ($1 \le a_i \le n$), representing the sequence a.

The third line contains n integers $b_1, b_2, \ldots, b_n$ ($1 \le b_i \le n$), representing the sequence b.

For each test file, it is guaranteed that the sum of n over all test cases does not exceed 2×10^5.

Output

For each test case, output on the first line two integers *cost* and *num* ($0 \le num \le 3n$), representing the minimum total cost and the corresponding number of operations. If it is impossible to make the two sequences equal by the operations above, output "-1".

Then output *num* lines, each containing two integers x_i and y_i ($1 \le x_i, y_i \le n$), indicating that in the i-th operation you swap a_{x_i} and b_{y_i}.

It can be proven that if it is possible to make the two sequences equal by the above operations, then there exists an optimal solution with at most $3n$ operations.

Example

standard input	standard output
3 3 1 1 3 3 2 2 4 1 2 2 3 4 4 3 1 2 1 1 2 1	2 2 2 1 2 3 3 4 1 2 3 2 3 3 4 3 -1