

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 ($1 \leq i, j \leq n$), 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 ($1 \leq T \leq 2 \times 10^5$). The description of the test cases follows.

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

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

The third line contains n integers b_1, b_2, \dots, b_n ($1 \leq b_i \leq n$), 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 ($0 \leq num \leq 3n$), 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 ($1 \leq x_i, y_i \leq n$), 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	2 2
3	2 1
1 1 3	2 3
3 2 2	3 4
4	1 2
1 2 2 3	3 2
4 4 3 1	3 3
2	4 3
1 1	-1
2 1	