

The Game

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

Randias is playing a game. He is given two multisets (a set which can contain duplicate elements) A and B , consists of n and m integers $A_1, A_2, \dots, A_n, B_1, B_2, \dots, B_m$ respectively. He can perform the following operation any number of times:

- Choose one element x where $x \in A$, change x to $x + 1$. Then remove the minimal element in A , Note that if there are more than one minimal element in A , we only remove one of them.

For example, if $A = \{4, 4, 5, 5, 6\}$ and we choose $x = 5$, A will become $\{4, 5, 6, 6\}$ after one operation.

He wants to know whether he can make $A = B$ after several (possibly zero) operations? If he can make it, please help him to determine which operations need to be performed.

Two multisets are consider to be the same, if for all x , the number of occurrence of x in A and B are the same.

Input

The first line contains t ($1 \leq t \leq 5 \cdot 10^4$), representing the number of testcases.

For each testcase, the first line contains two integers n, m ($1 \leq m \leq n \leq 3 \cdot 10^5$), representing the size of two multisets.

The following line contains n integers A_1, A_2, \dots, A_n ($1 \leq A_i \leq 10^9$).

The following line contains m integers B_1, B_2, \dots, B_m ($1 \leq B_i \leq 10^9$).

It is guaranteed that the sum of n and the sum of m over all test cases does not exceed $3 \cdot 10^5$.

Output

For each test case, if Randias cannot let $A = B$, output “-1”.

Otherwise, on the first line, output the number of operations L ($0 \leq L \leq n$) Randias needs to make.

The following line contains L integers x_1, x_2, \dots, x_L , representing the integer x each operation choose. You must ensure that $x \in A$ before each operation.

If there are multiple solutions, output any.

Example

standard input	standard output
6	2
5 3	1 3
1 2 2 3 3	-1
2 3 4	3
4 2	2 4 4
1 2 2 4	5
2 4	1 1 1 2 3
5 2	2
2 3 3 4 4	1 1
5 5	-1
6 1	
1 1 1 1 1 1	
4	
4 2	
1 1 1 2	
2 2	
4 1	
1 1 1 1	
2	