

## Problem B. Pair Programming

**Time limit** 2000 ms

**Mem limit** 524288 kB

Monocarp and Polycarp are learning new programming techniques. Now they decided to try pair programming.

It's known that they have worked together on the same file for  $n + m$  minutes. Every minute exactly one of them made one change to the file. Before they started, there were already  $k$  lines written in the file.

Every minute exactly one of them does one of two actions: adds a new line to the end of the file or changes one of its lines.

Monocarp worked in total for  $n$  minutes and performed the sequence of actions  $[a_1, a_2, \dots, a_n]$ . If  $a_i = 0$ , then he adds a new line to the end of the file. If  $a_i > 0$ , then he changes the line with the number  $a_i$ . Monocarp performed actions strictly in this order:  $a_1$ , then  $a_2$ , ...,  $a_n$ .

Polycarp worked in total for  $m$  minutes and performed the sequence of actions  $[b_1, b_2, \dots, b_m]$ . If  $b_j = 0$ , then he adds a new line to the end of the file. If  $b_j > 0$ , then he changes the line with the number  $b_j$ . Polycarp performed actions strictly in this order:  $b_1$ , then  $b_2$ , ...,  $b_m$ .

Restore their common sequence of actions of length  $n + m$  such that all actions would be correct — there should be no changes to lines that do not yet exist. Keep in mind that in the common sequence Monocarp's actions should form the subsequence  $[a_1, a_2, \dots, a_n]$  and Polycarp's — subsequence  $[b_1, b_2, \dots, b_m]$ . They can replace each other at the computer any number of times.

Let's look at an example. Suppose  $k = 3$ . Monocarp first changed the line with the number 2 and then added a new line (thus,  $n = 2$ ,  $a = [2, 0]$ ). Polycarp first added a new line and then changed the line with the number 5 (thus,  $m = 2$ ,  $b = [0, 5]$ ).

Since the initial length of the file was 3, in order for Polycarp to change line number 5 two new lines must be added beforehand. Examples of correct sequences of changes, in this case, would be  $[0, 2, 0, 5]$  and  $[2, 0, 0, 5]$ . Changes  $[0, 0, 5, 2]$  (wrong order of actions) and  $[0, 5, 2, 0]$  (line 5 cannot be edited yet) are not correct.

### Input

The first line contains an integer  $t$  ( $1 \leq t \leq 1000$ ). Then  $t$  test cases follow. Before each test case, there is an empty line.

Each test case contains three lines. The first line contains three integers  $k, n, m$  ( $0 \leq k \leq 100, 1 \leq n, m \leq 100$ ) — the initial number of lines in file and lengths of Monocarp's and Polycarp's sequences of changes respectively.

The second line contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $0 \leq a_i \leq 300$ ).

The third line contains  $m$  integers  $b_1, b_2, \dots, b_m$  ( $0 \leq b_j \leq 300$ ).

## Output

For each test case print any correct common sequence of Monocarp's and Polycarp's actions of length  $n + m$  or  $-1$  if such sequence doesn't exist.

## Examples

Input	Output
5	2 0 0 5
3 2 2	0 2 0 6 5
2 0	-1
0 5	0 6 0 7 0 8 0 9
	-1
4 3 2	
2 0 5	
0 6	
0 2 2	
1 0	
2 3	
5 4 4	
6 0 8 0	
0 7 0 9	
5 4 1	
8 7 8 0	
0	