C. Pair Programming

time limit per test: 2 seconds
memory limit per test: 512 megabytes

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 $[a_1, a_2, \ldots, a_n]$. 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 $[b_1, b_2, \ldots, b_m]$. 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 $[a_1, a_2, \ldots, a_n]$ and Polycarp's — subsequence $[b_1, b_2, \ldots, b_m]$. 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 ($1 \le t \le 1000$). 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 ($0 \le k \le 100$, $1 \le n, m \le 100$) — 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 $a_1, a_2, \ldots, a_n$ ($0 \le a_i \le 300$).

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

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.

Example

input Copy

```
5

3 2 2
2 0
0 5

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
```

output Copy

```
2 0 0 5
0 2 0 6 5
-1
0 6 0 7 0 8 0 9
-1
```