Untitled Problem

We consider a sequence S_1 is **equal** to a sequence S_2, if and only if they satisfy the following conditions:

- The length of them are equal.
- Let **Len** be the length of them. For each i,j(1 <= i, j <= **Len**, i != j):If $S_1[i]$ is smaller than $S_1[j]$, $S_2[i]$ must be smaller than $S_2[j]$; If $S_1[i]$ is greater than $S_1[j]$, $S_2[i]$ must greater than $S_2[j]$.

Now you are given a sequence **S** and another **N** sequences T_1, T_2 .... T_N.

We say position **i** is **OK**, if and only if **S**[1..**i**] contains a suffix which is **equal** to a sequence from { T_1, T_2 ... T_N }. You need to print the positions which is **OK** in increasing order.

Input

Multiple test cases, the number of them(no more than 3) is given in the very first line.

For each test case:

- The first line contains an integer **M** (**M** > 1) which denote the number of sequences. **i.e. M** = **N** + 1.
- **M** * 2 lines follow, each two lines describe one sequence.For each two lines, the first line contains an integer **L** which denote the length of this sequence. The second line contains **L** integers(all the integers don't exceed 2^{31}-1) that represent this sequence. The first sequence described is **S**, the next **N** sequences represent T_1 ... T_N.
- You can assume that there are no same integer in any one sequence.
- The length of **S** is no more than 400000, and the total length of **T** is no more than 100000.

Output

For each test case: Print the positions which is **OK** in increasing order.

Example

Input:

```
2
2
1
1
1
2
3
3
3 1 2
2
4 5
2
10 1
```

Output: