## L. SCTAB

You are given table A , which consists of m rows and n columns. Each cell of the table contains an integer whose absolute value does not exceed 100. You can apply the operation $\operatorname{sort}(\mathrm{k})$ which arranges the rows of the table in ascending order according to the value of the cell in the k-th column. If there are several rows that have the same value in the k-th column, then the relative order of the rows does not change.
You are also given table B, which is formed by applying a sequence of operations $\operatorname{sort}\left(\mathrm{k}_{1}\right)$, $\operatorname{sort}\left(\mathrm{k}_{2}\right), \ldots, \operatorname{sort}\left(\mathrm{k}_{\mathrm{s}}\right)$ on table A. Find the shortest sequence of operations that when applied on table A also results in table B.

## INPUT

The first line contains 3 integers $m$, $n$, and $s .(m \leq 20, n \leq 9, s \leq 100)$.
The next $m$ lines contain $n$ integers, denoting the cells in table $A$.
The next line contains $s$ integers $k_{1}, k_{2}, k_{3}, \ldots, k_{s}\left(1 \leq k_{i} \leq n\right)$, denoting a sequence of operations that can be applied on table A to form table B.

## OUTPUT

In the first line, print the length of the shortest possible sequence of operations that results in table B. In the next line, print the sequence of operations. If there are multiple sequences that have the same length, print the lexicographically smallest sequence.

| Sample Input | Sample Output |
| :--- | :--- |
| 224 | 1 |
| 12 | 2 |
| 21 |  |
| 1212 |  |

