



## Segment Fault

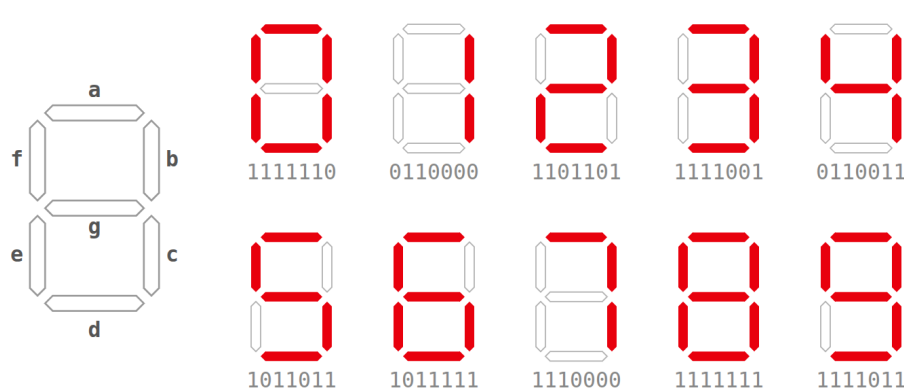
Time Limit: 5.0 s | Memory Limit: 512 MiB

Angus thought it would be fun to have a large physical display by each NZPC team, displaying their current score. He decided to use a multi-digit 7-segment display.

However, Angus seems to have made some sort of hardware or software error. Angus suspects that in each digit, one segment is faulty and never lights up. The faulty segment may be in a different position from digit to digit, and some digits may have no faulty segment at all. This makes it difficult to tell what each team's true score was.



The segments of a single digit 7-segment display are labelled 'a' through 'g', as in the following figure. The figure also shows how the digits 0 through 9 are represented when all segments are functional. Underneath each digit is the representation of the display state using a 7-character string of zeros or ones, with the first character representing the 'a' segment, the second the 'b' segment and so on.



Because a faulty segment can only stay dark, an observed digit is some real digit with *at most one* of its lit segments switched off. For example, the pattern 1111110 normally shows a 0; but it could also be an 8 (1111111) whose segment 'g' is faulty. So an observed 0 might really have been a 0 or an 8.

Angus have come to you for help. He wants to know what the  $k$ -th largest possible original score could have been, for several values of  $k$ . The scores are compared as  $n$ -digit numbers, so the greatest possible value is considered the 1st largest, the second greatest value is the 2nd largest, and so on.

### Input

The first line contains two integers  $n$  and  $q$  ( $1 \leq n \leq 10^5$ ,  $1 \leq q \leq 6$ ), the number of digits in the displayed score and the number of queries.

The next  $n$  lines each contain a 7-character binary string describing the observed state of one digit. The first character corresponds to segment 'a', the second to 'b', and so on.

The next  $q$  lines each contain a single integer  $k$  ( $1 \leq k \leq 10^6$ ), asking for the  $k$ -th largest possible original score, given the observed digits.

### Output

While Angus hopes there is only 1 segment being faulty in each digit, this is not guranteed. If some displayed digit cannot be produced by any real digit with at most one faulty segment, then Angus will throw the scoreboard a NZPC and System Error.

ERROR

and terminate.

Otherwise, let  $m$  be the number of possible original scores.



# New Zealand Programming Contest

8 August 2026

## Sample Input 2

```
1 1
0000001
1
```

## Sample Output 2

```
ERROR
```

## Sample Input 3

```
3 2
1111111
0110011
1101101
1
2
```

## Sample Output 3

```
842
NONEXISTENT
```