

7724 Regular Number

Using regular expression to define a numeric string is a very common thing. Generally, use the shape as follows:

$$(0|9|7) (5|6) (2) (4|5)$$

Above regular expression matches 4 digits: The first is one of 0,9 and 7. The second is one of 5 and 6. The third is 2. And the fourth is one of 4 and 5. The above regular expression can be successfully matched to '0525', but it cannot be matched to '9634'.

Now, giving you a regular expression like the above formula, and a long string of numbers, please find out all the substrings of this long string that can be matched to the regular expression.

Input

It contains a set of test data. The first line is a positive integer N ($1 \leq N \leq 1000$), on behalf of the regular representation of the N bit string. In the next N lines, the first integer of the i -th line is a_i ($1 \leq a_i \leq 10$), representing that the i -th position of regular expression has a_i numbers to be selected. Next there are a_i numeric characters. In the last line, there is a numeric string. The length of the string is not more than $5 * 10^6$.

Output

Output all substrings that can be matched by the regular expression. Each substring occupies one line

Sample Input

```
4
3 0 9 7
2 5 7
2 2 5
2 4 5
09755420524
```

Sample Output

```
9755
7554
0524
```