

4310 Minimal Multiple

John has a number that can be modified by changing the position of its digits. The rules are the following: if one digit is in position A it can only be changed to a position B if and only if $|A - B| \leq k$ (namely, only if the absolute difference of $A - B$ is less or equal to one given k). John wants to know how many numbers can be generated that satisfy the property of being multiples of M .

Besides that, John he wants to know the minimal of number that satisfies the above restriction.

Input

Each input test case consists on the following:

- N ($0 \leq N \leq 10^{1000}$), k ($0 \leq k \leq 3$) and M ($0 < M \leq 100$).

Output

For each test case you must be print the number of numbers that you found *modulo* 10007 and the minimal number of them, otherwise print '-1'.

Sample Input

```
123421321111111 0 33
123421321111111 0 9
123421321111111 3 3
```

Sample Output

```
1 123421321111111
0 -1
5625 12122341131111
```