

Three

SEASON 10 - SECOND ROUND



You are given a positive integer N that has no more than 5×10^5 digits. You want to erase some of its digits and obtain another number from it, which satisfies the following conditions:

- the number has at least one digit;
- it does not have any leading zeroes;
- the number is a multiple of 3.

For example, such numbers are 0, 99 and 10110, but 00, 03 and 112 are not. Out of all such numbers, you must find the one which can be obtained from N by erasing as few digits as possible. You can erase any digits - they don't have to be at the beginning or at the end of the number, nor to be consecutive. Write a program that finds this number.

Input (three.in)

You will have to solve T independent testcases in a single test. The first line of the input file *three.in* contains the number T . Each of the next T lines contains the number N for the corresponding testcase.

Output (three.out)

For each testcase, print the wanted number on a separate line of the output file *three.out*. If there is more than one number, which satisfies the conditions and can be obtained by erasing as few digits as possible from N , print any. If there are no such numbers, print -1.

Constraints

$$1 \leq T \leq 10$$

$$1 \leq N < 10^{500\,000}$$

The total count of N 's digits across all testcases is not greater than 500 000.

Examples

Input	Output
4	33
1033	0
10	129
5129	-1
11	

**Note: another possible answer for the third testcase is 519, but not 51 or 12, because they are obtained by erasing two digits instead of one.*