Lottery tickets (lottery)

Tommaso would like to buy a new computer but unfortunately he doesn't have enough money. So he decided to try his luck and buy some lottery tickets.

Figure 1: This is a nice caption.

The lottery tickets are numbered, and one of his friends told him the secret to win the lottery: in a winning ticket the sum of the digits of the ticket number is exactly N and the ticket number does not contain 3 consecutive equal digits. When Tommaso arrived to the lottery shop, he saw that some tickets were already sold. The current ticket number is S and Tommaso must buy the tickets in order (first ticket number S, then ticket number $S + 1$, then ticket number $S + 2$, and so on). He wants to buy some tickets until he finds a winning one. Note that it is possible that Tommaso is not able to buy a winning ticket. What is the number of the winning ticket bought by Tommaso? Help Tommaso to find the answer in T different scenarios.

> ☞ Among the attachments of this task you may find a template file `lottery.*` with a sample incomplete implementation.

Input

The first line contains a single integer T denoting the number of test cases. The following T lines contains 2 integers: N and S.

Output

You need to write T lines with an integer: the number of the winning ticket bought by Tommaso, or -1 if he can not buy one.

Constraints

- $1 \leq T \leq 200$.
- $1 \leq N \leq 80\,000$.
- S is a positive integer written in decimal form with at most 10 000 digits and with no leading zeros.
- You must print the answer without leading zeros.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points) Examples.

– **Subtask 2** (25 points) $N \leq 32$ and the length of each S does not exceed 4.

– **Subtask 3** (36 points) $N \leq 2000$ and the length of each S does not exceed 300.

– **Subtask 4** (39 points) No additional limitations.

Examples

input	output
4 7 502 1 123 10 99 16 4440	502 -1 109 4453

Explanation

In the **first sample case**:

- In the first test Tommaso can buy the first ticket since it is a winning ticket.
- In the second test case Tommaso can not buy any winning ticket. Note that the ticket number 1000 is not a winning ticket since it contains three consecutive 0.