Problem A. Ancient Keyboard

Input file: `A.IN`
Program file: `A.cpp/A.c/A.dpr/A.java`

The scientists have found an ancient device that works in a strange way. The device has a keyboard and an output tape. The keyboard has 26 keys, with symbols '`A`' through '`Z`' on them. Each key has an LED on it (like the Caps Lock key on some keyboards). Each time you press a key, the LED on it toggles (changes its state from *off* to *on* or vice versa). All LEDs are *off* initially.

To study the output written on the tape, we consider the device in discrete time steps. Suppose we are in time t. If no LED is *on*, no output is written on the tape. If there are i LEDs *on*, the ith letter of the English alphabet is written on the tape. For example, if three LEDs are *on* at a time step, a letter '`C`' is written on the tape. This process repeats at every time step.

You are asked to write a program that simulates the ancient device.

Input

The input contains multiple test cases. The first line of the input, contains t, the number of test cases that follow. Each of the following t blocks, describes a test case.

The first line of each block contains one integer n ($0 \leq n \leq 26$). After this, there are n lines, each containing one capital alphabet letter, followed by two integers a and b, ($0 \leq a < b \leq 1000$). The capital letter shows the key pressed. The number a is the first time step at which the key is pressed and the number b is the second time step at which the key is pressed. During the interval $a, a+1, \ldots, b-1$, the LED of the key is *on*. You can assume that, in each test case, these letters are distinct.

Output

For each test case, output one line containing the output string that is written on the tape.

Sample input and output

A.IN	Standard Output
2 2 X 2 6 Y 4 9 3 A 1 5 B 4 8 C 9 10	AABBAAA AAABAAAA