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Problem 1/Pink Balloon: On Strike

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You have recently purchased an old dot-matrix printer. Each printed character is made up of an 8-by-8 pattern of dots. Of course, the printer has a set of n built-in characters, numbered from 1 to n (where $1 \leq n \leq 16$). Your work in foreign languages means that you are going to have to print some characters which are not built-in, and you discover that the printer is not capable of printing bit-mapped graphics. An elegant way around the problem is to use *overstrikes*, in which a character is printed, followed by a backspace character and another character, etc. By carefully choosing the characters to print, you can build up the desired pattern of dots for the foreign character. Given the desired dot pattern, your program must choose built-in characters to overstrike, while at the same time ensuring that the most-struck dot is not struck more than k times. You will only be given foreign character dot patterns which *can* be overstruck from the built-in characters.

The input consists of several lines of natural numbers (non-negative integers). The first line contains n . The next n lines contain the dot patterns for the n builtin characters, in ascending order of their numbering. Each such line consists of 8 numbers, describing the rows of bit patterns from top to bottom; thus, the i th number describes the i th row, and the most-significant bit of the binary representation of the number represents the left most dot, with a 1 indicating a printed dot, and a 0 indicating a blank dot. The next line contains a natural number k . The next line specifies the desired dot pattern of the non-built-in character, given in the same format as the built-in characters.

Your output is to consist of one line, containing the built-in characters (just their numbers, which will lie in the inclusive range 1 to n) to overstrike to generate the non-built-in character. The built-in characters must be in ascending order.