10851 2D Hieroglyphs decoder

Steganography is one of the most famous techniques for hiding information in different places, including images. Recently, for example, Xerox announced they were releasing a 2D-hieroglyphs that were able to codify a message within them. Your task is to decipher a 2D-hieroglyph.

A 2D hieroglyph is a matrix H of 10 rows and M+2 columns that encode a message of length M characters $(c_0, c_1, \ldots, c_{M-1})$. The matrix H has the following lattice:

$$H_{i,j} = \begin{cases} '/' & \forall i = 0, j \in (0, 1, \dots, M+1) \\ '/' & \forall i = 9, j \in (0, 1, \dots, M+1) \\ '/' & \forall j = 0, i \in (0, 1, \dots, 9) \\ '/' & \forall j = M+1, i \in (0, 1, \dots, 9) \\ b(i-1, c_{j-1}) & \forall i \in (1, 2, \dots, 8), j \in (1, 2, \dots, M) \end{cases}$$

where

$$b(i,c) = \begin{cases} \frac{\prime}{\prime} & \text{if } \left(\frac{c}{2^i}\right) \bmod 2 = 0\\ \frac{\prime}{\prime} & \text{if } \left(\frac{c}{2^i}\right) \bmod 2 = 1 \end{cases}$$

and c is the ASCII value of the character passed to the b function.

Your task is to find the message given the matrix H.

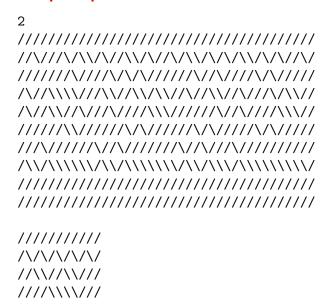
Input

The input is composed of a first line with a number N indicating the number of messages to decode, followed by N matrices separated by a "newline" character. The length of any message will not be more than 80 characters.

Output

The output must have N messages, one per each matrix given in the input.

Sample Input





Sample Output

LA LLUVIA EN SEVILLA ES UNA MARAVILLA abcdefghi