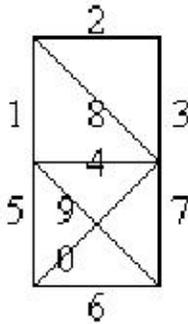




2163 - Led Codes

Latin America - South America - 2000/2001

Some led systems display characters as a combination of lightlines, much like digital calculators do. Suppose we have one of such led systems, in which each letter of the standard English alphabet is constructed combining some of ten possible lightlines, numbered as below:



For instance, the letter A is shown using the lines 1,2,3,4,5 and 7. With these few lines it is not possible, of course, to show all the 26 letters with their natural shapes. A complete list of the letters of our system is appended at the end.

You have to solve the problem of decoding a combination of numbers (representing lightlines) in the form of the respective letter, to form a whole word or phrase. As input you have a string of letters and/or numbers, and as output you must show only the letters.

Input

The input file begins with a line containing a single integer N, that indicates the number of input examples, followed by N lines, each one representing an input phrase. Each input phrase consists of uppercase letters, blank spaces and/or digits. In the case of digits, their combination must form valid led letters. Each letter is coded as a combination of numbers, ordered in the form 1,2,3,4,5,6,7,8,9,0. A zero (0) that is not part of a valid letter code, is interpreted as a blank space. You may assume that no invalid codes are entered, and that the system does not allow ambiguity between two letter codes.

Output

The output file consists of N lines (one for each input string) with the form:

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Phrase 1: .....  
Phrase 2: .....
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where the dots are, of course, the result of the decoding process. The alphabetic letters and blank spaces must not be decoded at all: only the numbers must be converted to the corresponding led letters.

Sample Input

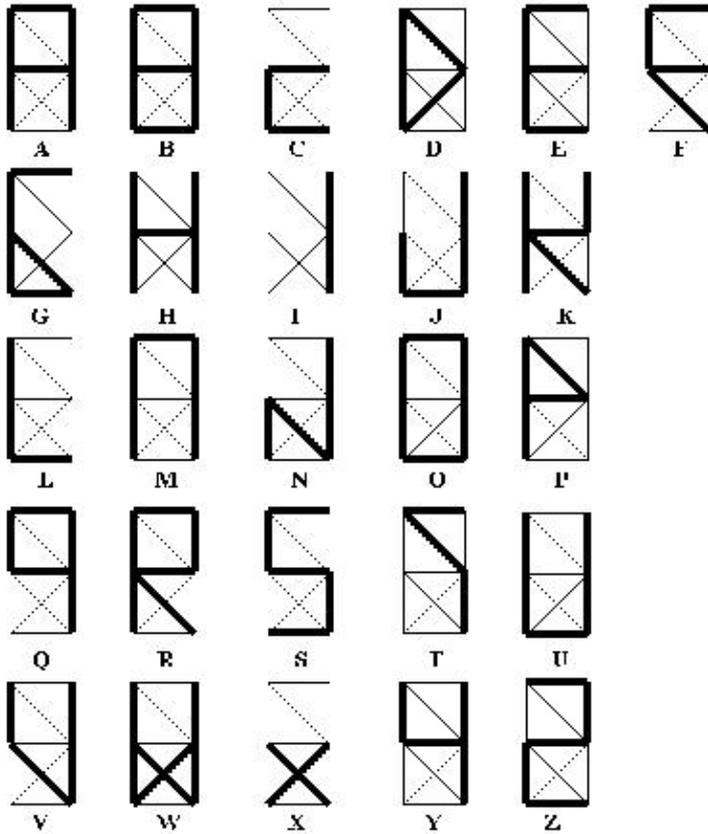
```
3  
HELL1235670W01234591561580
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PROGRAMMING037124670C123567123567156
AND MORE037124903735790278134573712467045612356735792781245612467278

Sample Output

Phrase 1: HELLO WORLD
Phrase 2: PROGRAMMING IS COOL
Phrase 3: AND MORE IF IN THIS CONTEST

Complete List of Letters



South America 2000-2001