DECODING PROBLEM

People have used letters, digits, and other punctuation symbols to represent information for hundreds, if not thousands, of years. To transmit such symbols via a computer line, however, we must encode the symbols using a binary (two-symbol) code, since computers only process information represented by strings of zeroes and ones.

A code is a set of binary strings. In the program you are to write for this problem the letters a, b, d, e, h, l, o, r and w will be encoded as follows:

a -> 1
b -> 01
d -> 001
e -> 0001
h -> 00001
l -> 000001
o -> 0000001
r -> 00000001
w -> 000000001

For example, the word "bed" will be encoded as 010001001. Your program must decode binary messages that have been encoded using the above code. The input file decode.txt will contain several words encoded as above, one per line. The first line will contain a single positive integer indicating the number of encoded lines to follow.

The output will consist of one decoded word per line, with each decoded word corresponding to an encoded word in the input file.

Sample input data from **decode.txt**

3
000001000000100000001
011000001000001
000000001000000100000001000001001

Output

low
ball
world

Sample input data from **decode.txt**

5
00001000100000100000100000001
011001
000010000001000001000001000000001000000001
000000001000000100000001000001001
010001000001000000100000001

Output

hello
bad
hollow
world
below