

13 Morse Code

Before the digital age, the most common “binary” code for radio communication was the Morse code. In Morse code, symbols are encoded as sequences of short and long pulses (called dots and dashes, respectively). The following table reproduces the Morse code for the alphabet, where dots and dashes are represented by ASCII characters “.” and “-”:

A	. -	B	- . . .	C	- . - .	D	- . .
E	.	F	. . - .	G	-- .	H
I	. .	J	. ---	K	- . -	L	. - . .
M	--	N	- .	O	---	P	. --- .
Q	-- . -	R	. - .	S	. . .	T	-
U	. . -	V	. . . -	W	. --	X	- . . -
Y	- . --	Z	-- . .				

There needs to be a pause between each letter in order to decode the message.

Problem:

Suppose John finds a message written in Morse code and John wants to see what it says. Unfortunately, the person who recorded the message did not mark the pauses between letters. They did, however, separate each word. John needs some way to list all the possibilities for each word. For example, if one of the words was “- . - .”, it could be decoded as “C”, “KE”, “NN”, “NTE”, “TAE”, “TEN”, “TETE”, or “TR”. If John had a way to make this list he could easily see that the word must be “TEN”.

Help John by writing a program that reads a Morse code string and outputs all the possible ways of decoding the string. The different options must be listed in alphabetical order and in all capital letters.

Note: The ↵ symbol in the examples below represents a newline character.

Example Input

--.-.↵

Example Output

GN↵
GTE↵
MAE↵
MEN↵
METE↵
MR↵
QE↵
TC↵
TKE↵
TNN↵
TNTE↵
TTAE↵
TTEN↵
TTETE↵
TTR↵