

Problem C: Surprising Strings

Source file: `surprise.{c, cpp, java}`

Input file: `surprise.in`

The *D-pairs* of a string of letters are the ordered pairs of letters that are distance *D* from each other. A string is *D-unique* if all of its *D-pairs* are different. A string is *surprising* if it is *D-unique* for every possible distance *D*.

Consider the string ZGBG. Its 0-pairs are ZG, GB, and BG. Since these three pairs are all different, ZGBG is 0-unique. Similarly, the 1-pairs of ZGBG are ZB and GG, and since these two pairs are different, ZGBG is 1-unique. Finally, the only 2-pair of ZGBG is ZG, so ZGBG is 2-unique. Thus ZGBG is surprising. (Note that the fact that ZG is both a 0-pair and a 2-pair of ZGBG is irrelevant, because 0 and 2 are different distances.)

Input: The input consists of one or more nonempty strings of at most 79 uppercase letters, each string on a line by itself, followed by a line containing only an asterisk that signals the end of the input.

Output: For each string of letters, output whether or not it is surprising using the *exact* output format shown below.

Acknowledgement: This problem is inspired by the "Puzzling Adventures" column in the December 2003 issue of *Scientific American*.

Example input:	Example output:
ZGBG	ZGBG is surprising.
X	X is surprising.
EE	EE is surprising.
AAB	AAB is surprising.
AABA	AABA is surprising.
AABB	AABB is NOT surprising.
BCBABCC	BCBABCC is NOT surprising.
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