A palindrome is a word that can be read the same way in either direction. More formally if a string is d $(d > 0)$ characters length and the i-th character is a_i, the string is palindrome if and only if a_i equals $a_{(d-i+1)}$ for $1 \leq i \leq d$. For example "abcba" is palindrome while "aaab" is not.

It is known that everyone who gets to know palindromes, begin an emotional relationship with these beautiful strings. The harmony between the letters makes them artistic. But the 89's (those who entered AUT at 1389) claim they love another kind of strings. It is called *alindrome*. Actually an alindrome is the result of concatenation of two palindromes. For example "abacc"="aba"+"cc" is alindrome.

Now you should write a program to distinguish alindromes, palindromes and other kind of strings.

Input

The first line contains T $(T \leq 50)$, the number of tests. Each test that comes in a separate line contains a string to be checked. Input strings contain only lower case letters ('a' to 'z') and their length will be at most 200000.

Output

For each test output a single word in a single line. If the input string can be made by concatenating two palindromes, output 'alindrome'. Otherwise if it's a palindrome output 'palindrome'. In any other case print 'simple'. (Quotes for clarity)

Sample Input

```
4
aaa
aabaa
aabaaa
abc
```

Sample Output

```
alindrome
palindrome
alindrome
simple
```