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Surat-395007**

**Web Programming and Python (AI104)**

**Assignment – 4**

**1. The Love-Letter Mystery**

James found a love letter his friend Harry has written for his girlfriend. James is a prankster, so he decides to meddle with the letter. He changes all the words in the letter into palindromes.

To do this, he follow 2 rules:

- (a) He can reduce the value of a letter. E.g. He can change 'd' to 'c' but he cannot change 'c' to 'd'.
- (b) In order to form a palindrome, if he has to repeatedly reduce the value of a letters, he can do it until the letters becomes 'a'. Once a letters has been changed to 'a', it can no longer be changed.

Each reduction in the value of any letter is counted as a single operation. Find the minimum number of operations required to convert a given string into a palindrome.

**Input Format:**

The first line contains an integer T, i.e., the number of the test cases.  
The next T lines will contain a string each.

**Output Format:**

A single line containing the number of minimum operations corresponding to each test case.

**Constraints:**

$1 \leq T \leq 10$

$1 \leq \text{length of string} \leq 10^4$

All character are lower case English letters.

**Sample Input #00**

3  
abc  
abcba  
abcd

**Sample Output #01**

2  
0  
4

**Explanation:**

For the first test case,  $ab*c* \rightarrow ab*b* \rightarrow aba$ .

For the second test case, `abcba` is a palindromic string.

For the third test case,  $abc*d* \rightarrow abc*c* \rightarrow abc*b* \rightarrow ab*c*a \rightarrow abba$ .

**2. Sherlock and Squares**

Watson gives two integers A & B to Sherlock and asks if he can count the number of square integers between A and B (both inclusive).

A square integer is an integer which is the square of any integer.

For example: 1,4,9,16 are some of the square integers as they are squares of 1,2,3,4 respectively.

**Input Format:**

First line contains T, the number of test cases. T test case follow, each in a newline.

Each test case contains two space separated integers denoting A and B.

**Output Format:**

For each test case, print the required answer in a new line.

**Constraints:**

$1 \leq T \leq 100$

$1 \leq A \leq B \leq 10^9$

**Sample Input**

2

3 9

17 24

**Sample Output**

2

0

**Explanation**

In the first test case, 4 and 9 are the square numbers.

In the second test case no square number exist between 17 and 24(both inclusive).

**3. Pangrams**

Roy wanted to increase his typing speed for programming contests so, his friend advised him to type the sentence “The quick brown fox jumps over the lazy dog” repeatedly because it is a pangram. (Pangrams are sentences constructed by using every letter of the alphabet at least once.)

After typing the sentence several times, Roy became bored with it. So he started to look for other pangrams.

Given a sentence s, tell Roy if it is a pangram or not.

**Input Format:**

Input consists of a line containing s.

**Output Format:**

Output a line containing **pangram** if s is a pangram, otherwise output **not pangram**

**Sample Input #00**

we promptly judged antique ivory buckles for the next prize

**Sample Output #00**

pangram

**Sample Input #01**

we promptly judged antique ivory buckles for the prize

**Sample Output #01**

not pangram

**Explanation**

In the first test case the answer is pangram because the sentence contains all the letters.