

# Palindrome Substring

**Problem ID:**palindromesubs


**Time limit:**8 seconds

**Memory limit:**1024 MB

**Difficulty:**3.8

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**Source:** Baylor Competitive Learning course

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A palindrome is a word or phrase that reads the same backwards or forwards. For this problem, we're going to find all the different palindromes that occur inside a string.

We'll say that string  $a$  is a *nontrivial palindrome substring* of  $b$  if  $a$  is a substring of  $b$ , the sequence of characters in  $a$  reads the same forwards or backwards, and  $a$  is at least two characters long. Here, a substring of  $b = b_1 b_2 \dots b_n$  is any string  $b_i b_{i+1} \dots b_{i+j}$  where  $i \geq 1$  and  $j \geq 1$  and  $i + j \leq n$ .

## Input

Input consists of up to 100 lines. Each line contains a string of 1 to 1000 characters chosen from a–z. Input ends at end of file.

## Output

For each input string, print out the list of all of its non-trivial palindrome substrings. Each list of palindromes should be sorted lexicographically, and should not contain duplicates. Print a blank line after the output for each input string.

### Sample Input 1

```
thisisatest
xxxx0000
```

### Sample Output 1

```
isi
sis

00
000
0000
xx
xxx
xxxx
```