

## D1 – Palins

A palindrome is a sequence of one or more characters that reads the same from the left as from the right. Z, TOT and MADAM are palindromes, but ADAM is not. Write a program that reads a sequence of strings and for each string determines the number of UNIQUE palindromes that are substrings of the original string and outputs all of the unique palindromes.

### Input

The input consists of a string that contain no spaces.

### Output

Output all of the unique palindromes. Output the unique palindromes in order based on length. If two palindromes have the same length output them in order of first occurrence in the original word.

### Example

Input :	Output :
MOM	3 - "M" "O" "MOM"
Input :	Output :
MADAM	5 - "M" "A" "D" "ADA" "MADAM"
Input :	Output :
TOT	3 - "T" "O" "TOT"
Input :	Output :
ADAM	4 - "A" "D" "M" "ADA"