



ASOCIACION  
COLOMBIANA  
DE INGENIEROS  
DE SISTEMAS



Universidad  
de los Andes



- XX Maratón Nacional de Programación -  
Ensayo  
2006  
ACM ICPC

Problemas

(Este conjunto contiene 2 problemas; páginas numeradas de 1 a 3)



Regionals 2006  
**acm** International Collegiate  
Programming Contest



event  
sponsor

# Problem A

## Hello Kitty

*Source file name: hkitty.c, hkitty.cpp or hkitty.java*

And if he left off dreaming about you ... Hello, Kitty!  
Through the Looking-Glass, VI (free version)

Kitty sends a kind of original email messages to her friend Garf. To write a message, she chooses a word  $W$  and a number  $n$  and replicates  $W$   $n$  times horizontally. Then she repeats this string in the next line, but rotating the characters once to the left. And she repeats this 'rotate-and-output' process until the word  $W$  appears displayed as the first column of the rectangular pattern that she produces.

As an example, when she chooses the word Hello and the number 3, she gets the pattern:

```
HelloHelloHello
elloHelloHelloH
lloHelloHelloHe
lHelloHelloHel
oHelloHelloHell
```

Kitty has been sending such emails during the last three years. Recently, Garf told her that perhaps her work may be automatized with a software to produce Kitty's patterns. Could you help her?

## Input

The input file contains several test cases, each one of them in a separate line. Each test case has a word and a positive integer that should generate the corresponding rectangular pattern. The word is a string of alphabetic characters (a..z). The number is less than 10.

A line whose contents is a single period character means the end of the input (this last line is not to be processed).

*The input must be read from the file hkitty.in.*

## Output

Output texts for each input case are presented in the same order that input is read. For each test case the answer must be a left aligned Kitty pattern corresponding to the input.

*The output must be written to standard output.*

Sample input	Output for the sample input
Love 1	Love
Kitty 2	oveL
.	veLo
	eLov
	KittyKitty
	ittyKittyK
	ttyKittyKi
	tyKittyKit
	yKittyKity

# Problem B

## Base Comparator

*Source file name: bcomp.c, bcomp.cpp or bcomp.java*

DigiCircuits Inc. is a software company that develops software simulators for digital circuits. A very frequently used component of its software, named the *comparator*, is a simulated circuit that compares numbers expressed in different numerical bases. More exactly, this component receives two numbers, each one in a possible different base, and decides if the first number is less than, equal to or greater than the second number.

The numerical bases that may appear vary from 1 to 9. Remember that a number expressed in base  $b$  uses only digits less than  $b$ .

Your task is to develop a program that simulates the function of the comparator component.

### Input

The input file contains several test cases, each one of them in a separate line. Each test case has four numerical strings, each two of them separated by a blank character, say

`s b t c`

Strings `b` and `c` are one-character strings. They represent the bases for the first and third strings `s` and `t`, respectively.

The end of the input is denoted by the end of the input file.

*The input must be read from the file bcomp.in.*

### Output

Output text for each input case is presented in the same order that input is read. For each test case the answer must be a left aligned answer-character corresponding to the input. This character must be `<`, `=` or `>`, accordingly to the fact that the first string represents a numerical value less than, equal to or greater than the represented by the third string.

*The output must be written to standard output.*

Sample input	Output for the sample input
54 6 71 8	<
110 2 6 7	=
3 4 3 9	=
14 7 1000 2	>