

3863 Abacus Sort

In this problem you'll have to implement the Abacus Sort algorithm, also known as the Bead Sort algorithm.

This abacus includes N poles, where N is the largest number to be sorted. Unlike conventional abacuses, a number is represented by a corresponding number of beads on a separate row, starting at the left (pole 1), and moving towards the right.

Once all numbers have been placed on their own row, we tilt the abacus and let the beads fall. In this case, four beads move downward.

At this point, the top row of the abacus will represent the smallest number, and we can read off all the numbers, in sorted order, by reading the values on the various rows, from the top down.

Input

The input file contains one or more test cases. Each test case consists of n lines ($0 < n \leq 80$), each line with an integer, val ($0 < val \leq 50$), to be sorted. After each test case, there will be a line with a single '0'. All integers will begin in the first column of the line. When reading input, the first item read will be the item at the top of the abacus when it is tilted and the last item read will be the item at the bottom.

The end of input will be indicated by end of file.

Output

For each test case in the input file, you should produce the listing of the sorted values in ascending order. Each value should be displayed in its own row of text, with an 'X' representing a pole with a bead and a hyphen representing a pole without a bead. There should be exactly N poles represented for each integer, where N is the largest number to be sorted in the set. At the end of the row, have a blank, a greater than (>) sign, a blank, and the integer being represented.

At the end of the final depiction of the abacus, have a line telling how many beads moved as a result of doing the sort. For example, in the example above (the first example in the sample input), 4 beads move. Your statement should have the form:

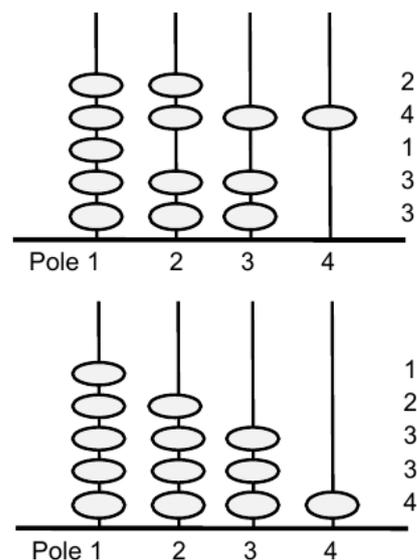
A total of xx beads slid during the sort.

where xx is replaced by the number of beads that move. You should not change 'beads' to 'bead' in the case of 1 bead sliding.

Have a blank line between output from each input set.

Sample Input

```
2
4
1
3
```



3
0
30
40
40
20
0

Sample Output

X--- > 1
XX-- > 2
XXX- > 3
XXX- > 3
XXXX > 4

A total of 4 beads slid during the sort.

XXXXXXXXXXXXXXXXXXXXX----- > 20
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX----- > 30
XX > 40
XX > 40

A total of 50 beads slid during the sort.