Problem G. Giant Blog

You are owning a blog. This time you are going to make a navigation of the pages. In your blog, there are n pages numbered by integers from 1 to n. Assume that somebody is on the p-th page now. The navigation will look like this:

$$<<\ p-k\ \ p-k+1\ \cdots\ p-1\ \ p\ \ p+1\ \cdots\ p-k+1\ \ p+k\ >>$$

..where k is a given fixed positive integer.

When someone clicks the button "<<" he or she is redirected to page 1, and when someone clicks the button ">>" he or she is redirected to page n. Of course if someone clicks on a number, he is redirected to the corresponding page.

There are some conditions in the navigation:

- If page 1 is in the navigation, the button "<<" must *not* be printed.
- If page n is in the navigation, the button ">>" must *not* be printed.
- If the page number is smaller than 1 or greater than n, it must *not* be printed. ~

You can see some examples of the navigations. Write a program that prints the navigation.

Input

Your input consists of an arbitrary number of records, but no more than 100.

Each input record is a line that consists of three integers n $(3 \le n \le 100)$, p $(1 \le p \le n)$, and k $(1 \le k \le n)$,

The end of input is indicated by a line containing only the value -1.

Output

For each input record, print a line that contains the proper navigation. Follow the format of the output from the examples.

Example

Standard input	Standard output
17 5 2 6 5 2 6 1 2 6 2 2 9 6 3 10 6 3 8 5 4 -1	<< 3 4 (5) 6 7 >> << 3 4 (5) 6 (1) 2 3 >> 1 (2) 3 4 >> << 3 4 5 (6) 7 8 9 << 3 4 5 (6) 7 8 9 >> 1 2 3 4 (5) 6 7 8

Time Limit

1 second.