CS 504

ASSIGNMENT #1

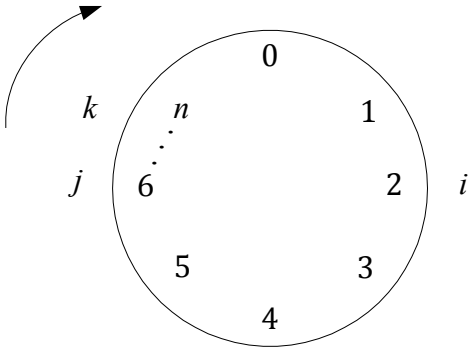
Consider four integers n, i, j, and k. We are interested in knowing if the following four conditions hold:

1. $n > 0$;

2. i, j, and k and all between 0 and n, inclusive;

3. $i \neq j$;

4. if the integers 0–n are arranged circularly, as shown here, k lies on the arc of the circle between j and i (including i, but not including j) when moving forward (i.e., clockwise, in the direction of the arrow) from j to i.



For example, consider the case $n = 7$. Then these arrangements all satisfy conditions 1–3, but not necessarily condition 4:

i	j	k	Satisfy condition 4 ?
2	6	7	yes
2	6	1	yes
2	6	3	no
3	5	3	yes
0	7	0	yes
0	7	6	no
3	5	4	no
4	2	5	no
4	2	3	yes
7	0	0	no

(OVER)

Write a Java program that prompts the user to enter four integers representing n, i, j, and k, and displays either the message "k lies on the arc from j to i when moving clockwise on a circle of size n" or "k does not lie on the arc from j to i when moving clockwise on a circle of size n." Your program may not contain any loops, and should be as short as possible.

Test your program on the inputs shown above, as well as inputs of your own choosing for values of n other than 7.

Hand in a hard-copy of your program along with a snapshot of all test runs.