# Graphs - Complete Notebook

codes, explanation, notes, Implementation, algorithms and questions from leetcode and codeforces.

By Master The Codes



TOP

HOME

PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

CONTESTS

CATALOG

## A. King Escape

PROBLEMSET

GROUPS

RATING

**EDU** 

API CAL

GYM

time limit per test: 1 second memory limit per test: 256 megabytes

Alice and Bob are playing chess on a huge chessboard with dimensions  $\underline{n} \times \underline{n}$ . Alice has a single piece left — a queen, located at  $(a_x,a_y)$ , while Bob has only the king standing at  $(b_x,b_y)$ . Alice thinks that as her queen is dominating the chessboard, victory is hers.

But Bob has made a devious plan to seize the victory for himself — he needs to march his king to  $(c_x,c_y)$  in order to claim the victory for himself. As Alice is distracted by her sense of superiority, she no longer moves any pieces around, and it is only Bob who makes any turns.

Bob will win if he can move his king from  $(b_x,b_y)$  to  $(c_x,c_y)$  without ever getting in check. Remember that a king can move to any of the 8 adjacent squares. A king is in check if it is on the same rank (i.e. row), file (i.e. column), or diagonal as the enemy queen.

Find whether Bob can win or not.

#### input

The first line contains a single integer n ( $3 \le n \le 1000$ ) — the dimensions of the chessboard.

The second line contains two integers  $a_x$  and  $a_y$   $(1 \le a_x, a_y \le n)$  — the coordinates of Alice's queen.

The third line contains two integers  $b_x$  and  $b_y$   $(1 \le b_x, b_y \le n)$  — the coordinates of Bob's king.

The fourth line contains two integers  $c_x$  and  $c_y$   $(1 \le c_x, c_y \le n)$  — the coordinates of the location that Bob wants to get to:

It is guaranteed that Bob's king is currently not in check and the target location is not in check either.

Furthermore, the king is not located on the same square as the queen (i.e.  $a_x \neq b_x$  or  $a_y \neq b_y$ ), and the target does coincide neither with the queen's position (i.e.  $c_x \neq a_x$  or  $c_y \neq a_y$ ) nor with the king's position (i.e.  $c_x \neq b_x$  or  $c_y \neq b_y$ ).

#### Outpu

Print "YES" (without quotes) if Bob can get from  $(b_x,b_y)$  to  $(c_x,c_y)$  without ever getting in check, otherwise print "NO".

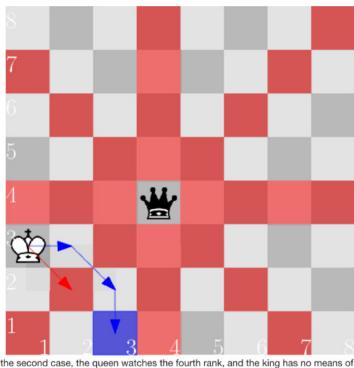
You can print each letter in any case (upper or lower).

### Examples

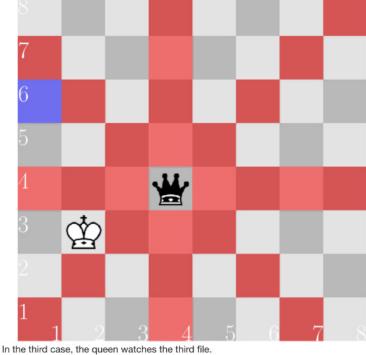
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output	Сору
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In the second case, the queen watches the fourth rank, and the king has no means of crossing it.





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