Problem F
Subdividing a Narrow Passageway

Tresno is a strategist for the ICPC Kingdom. He has received intelligence that monsters will attack a narrow passageway near the kingdom. The passageway can be represented as a grid with 2 rows (numbered from 1 to 2) and N columns (numbered from 1 to N). Each cell is guarded by exactly one soldier; the soldier guarding the cell in row r and column c is of type $A_{r,c}$.

Tresno wants to divide the soldiers into groups satisfying the following conditions:

- Each soldier belongs to exactly one group.
- Each group consists of all the soldiers guarding the cells of a subrectangle of the passageway.
- No two soldiers in the same group have the same type.

Determine the minimum number of groups Tresno needs to form.

Input

The first line contains an integer N ($1 \leq N \leq 5000$), the number of columns.

The r-th line of the next two lines contains N space-separated integers $A_{r,1}, A_{r,2}, \ldots, A_{r,N}$ ($1 \leq A_{r,c} \leq 5000$), describing the types of the soldiers.

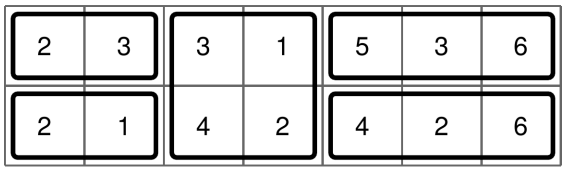
Output

Output a single integer denoting the minimum number of groups Tresno needs to form.

Sample 1

Sample Input	Sample Output
7 2 3 3 1 5 3 6 2 1 4 2 4 2 6	5

Explanation of Sample 1: Tresno can form the following 5 groups satisfying the conditions in the problem statement.

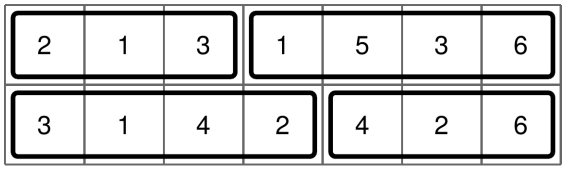


It can be shown that it is impossible to subdivide the soldiers into 4 or fewer groups. Thus, the answer is 5.

Sample 2

Sample Input	Sample Output
7 2 1 3 1 5 3 6 3 1 4 2 4 2 6	4

Explanation of Sample 2: Tresno can form the following 4 groups.



Sample 3

Sample Input	Sample Output
1 23 67	1