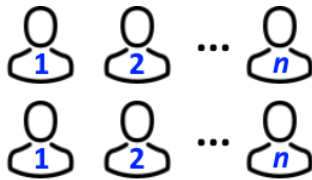


B. Mattox's Basketball

time limit per test: 2 s.
memory limit per test: 256 MB

Finally, a basketball court has been opened in CIF, so Mattox has decided to hold a basketball exercise session. $2 \cdot n$ students have come to Mattox's exercise session, and he lined up them into two rows of the same size (there are exactly n people in each row). Students are numbered from 1 to n in each row in order from left to right.



Now Mattox wants to choose a team to play basketball. He will choose players from left to right, and the index of each chosen player (excluding the first one **taken**) will be strictly greater than the index of the previously chosen player. To avoid giving preference to one of the rows, Mattox chooses students in such a way that no consecutive chosen students belong to the same row. The first student can be chosen among all $2n$ students (there are no additional constraints), and a team can consist of any number of students.

Mattox thinks, that in order to compose a perfect team, he should choose students in such a way, that the total height of all chosen students is maximum possible. Help Mattox to find the maximum possible total height of players in a team he can choose.

Input

The first line of the input contains a single integer n ($1 \leq n \leq 10^5$) — the number of students in each row.

The second line of the input contains n integers $h_{1,1}, h_{1,2}, \dots, h_{1,n}$ ($1 \leq h_{1,i} \leq 10^9$), where $h_{1,i}$ is the height of the i -th student in the first row.

The third line of the input contains n integers $h_{2,1}, h_{2,2}, \dots, h_{2,n}$ ($1 \leq h_{2,i} \leq 10^9$), where $h_{2,i}$ is the height of the i -th student in the second row.

Output

Print a single integer — the maximum possible total height of players in a team Mattox can choose.

Examples

input	Copy
5 9 3 5 7 3 5 8 1 4 5	
output	Copy
29	
input	Copy
3 1 2 9 10 1 1	
output	Copy

UIUC CS 491 Spring 2025

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→ Group Contests

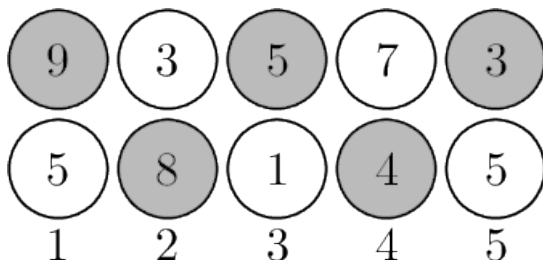
- Line Sweep - Homework (Extra Credit)
- Convex Hull - Preclass
- Number Theory I - Homework
- Line Sweep - Preclass
- Number Theory II - Homework
- Combinatorics - Homework
- Geometry - Preclass
- Geometry - Homework
- Convex Hull - Homework (Extra Credit)
- Rabin Karp - Homework
- Number Theory II - Preclass
- Combinatorics - Preclass
- DP TSP - Homework
- KMP - Homework
- DP Tree - Homework
- Number Theory I - Preclass
- KMP - Preclass
- DP Palindromes - Homework
- Rabin Karp - Preclass
- DP Edit Distance - Homework
- DP Knapsack - Homework
- DP TSP - Preclass
- DP Longest Increasing Subsequence - Homework
- DP Intro - Homework
- DP Tree - Preclass
- Greedy - Homework
- Fenwick Tree - Homework

input[Copy](#)1
7
4**output**[Copy](#)

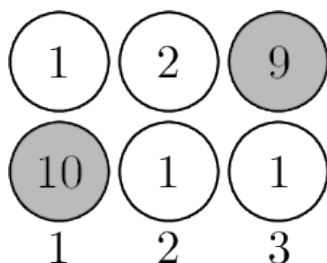
7

Note

In the first example Mattox can choose the following team as follows:



In the second example Mattox can choose the following team as follows:



- DP Knapsack - Preclass
- DP Edit Distance - Preclass
- Segment Tree - Homework
- DP Palindromes - Preclass
- Lazy Segment Tree - Homework
- LCA and Binary Lifting - Homework
- DP intro - Preclass
- Square Root Decomposition - Homework
- DP Longest Increasing Subsequence - Preclass
- Greedy - Preclass
- Fenwick Tree - Preclass
- Bit Manipulation - Homework
- Square Root Decomposition - Preclass
- Fast Exponentiation - Homework
- MST - Homework
- Lazy Segment Tree - Preclass
- LCA and Binary Lifting - Preclass
- Segment Tree - Preclass
- Bit Manipulation - Preclass
- Fast Exponentiation - Preclass
- MST - Preclass
- Graph Traversal 2 - Homework
- Graph Traversal 2 - In Class
- All Pairs Shortest Path - Homework
- All Pairs Shortest Path - In Class
- Single Source Shortest Path - Homework
- Single Source Shortest Path - In Class
- Graph Traversal 1 - Homework
- Graph Traversal 1 - In Class
- Binary Search Tree - Homework
- Binary Search Tree - In Class
- Disjoint Sets - Homework
- Disjoint Sets - In Class
- Divide and Conquer - Homework
- Divide and Conquer - In Class
- Complete Search - Homework
- Complete Search - In Class
- STL - Homework
- STL - In Class
- IO Problems - Preclass
- Test Contest