

Stock Portfolio



After doing research on various companies, you have filtered out and picked n stocks (1-indexed) in total which are worth investing in. But due to various market factors, you know that for the i^{th} stock, if you are picking it, you cannot pick the l_i consecutive stocks which are on the left side of the current stock and r_i consecutive stocks which are on the right side of the current stock. For each stock i , it has a strength, $strength_i$.

You are required to create a portfolio of *any* number of stocks such that the total strength of the stocks, i.e., the sum of strengths of the stocks is maximized and no two stocks that should not be picked together are in the portfolio.

Input Format

The first line of input contains an integer n denoting the number of stocks available for selection. The second line contains n integers. The i^{th} integer denotes $strength_i$, i.e., the strength of the i^{th} stock. The third line contains n integers. The i^{th} integer denotes l_i , i.e. the number of consecutive stocks that cannot be picked on the left of i^{th} stock. The fourth line contains n integers. The i^{th} integer denotes r_i , i.e. the number of consecutive stocks that cannot be picked on the right of i^{th} stock.

Constraints

For 30% score : $1 \leq n \leq 10^3$

For 100% score : $1 \leq n \leq 2 \times 10^5$

$1 \leq strength_i \leq 10^9$

$0 \leq l_i \leq i - 1$

$0 \leq r_i \leq n - i$

Output Format

Output a single line containing the answer to the problem, i.e., the maximum total strength of the stocks that you picked.

Sample Input

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5
1 3 7 3 7
0 0 2 2 2
3 0 1 0 0
```

Sample Output

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10
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Explanation

When we select stock 2 and stock 5, we can form a portfolio of total strength 10.