F - Happy Birthday! 3

Editorial (/contests/abc400/tasks/abc400_f/editorial)

Time Limit: 3 sec / Memory Limit: 1024 MiB

Score : 550 points

Problem Statement

There is a circular cake that has been cut into N equal slices by its radii.

Each piece is labeled with an integer from 1 to N in clockwise order, and for each integer i with $1 \leq i \leq N$, the piece i is also referred to as piece $N + i$.

Initially, every piece's color is color 0.

You can perform the following operation any number of times:

- Choose integers a, b, and c such that $1 \leq a, b, c \leq N$. For each integer i with $0 \leq i < b$, change the color of piece $a + i$ to color c. The cost of this operation is $b + X_c$.

You want each piece i (for $1 \leq i \leq N$) to have color C_i. Find the minimum total cost of operations needed to achieve this.

Constraints

- $1 \leq N \leq 400$
- $1 \leq C_i \leq N$
- $1 \leq X_i \leq 10^9$
- All input values are integers.

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Input

The input is given from Standard Input in the following format:

$$
\begin{array}{l}
N \\
C_1 \ C_2 \ \dots \ C_N \\
X_1 \ X_2 \ \dots \ X_N
\end{array}
$$

Output

Print the answer.

Sample Input 1 Copy

Copy

```
6
1 4 2 1 2 5
1 2 3 4 5 6
```

Sample Output 1 Copy

Copy

```
20
```

Let A_i denote the color of piece i. Initially, $(A_1, A_2, A_3, A_4, A_5, A_6) = (0, 0, 0, 0, 0, 0)$.

Performing an operation with $(a, b, c) = (2, 1, 4)$ changes $(A_1, A_2, A_3, A_4, A_5, A_6)$ to $(0, 4, 0, 0, 0, 0)$.

Performing an operation with $(a, b, c) = (3, 3, 2)$ changes $(A_1, A_2, A_3, A_4, A_5, A_6)$ to $(0, 4, 2, 2, 2, 0)$.

Performing an operation with $(a, b, c) = (1, 1, 1)$ changes $(A_1, A_2, A_3, A_4, A_5, A_6)$ to $(1, 4, 2, 2, 2, 0)$.

Performing an operation with $(a, b, c) = (4, 1, 1)$ changes $(A_1, A_2, A_3, A_4, A_5, A_6)$ to $(1, 4, 2, 1, 2, 0)$.

Performing an operation with $(a, b, c) = (6, 1, 5)$ changes $(A_1, A_2, A_3, A_4, A_5, A_6)$ to $(1, 4, 2, 1, 2, 5)$.

In this case, the total cost is $5 + 5 + 2 + 2 + 6 = 20$.

Sample Input 2 Copy

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```
5
1 2 3 4 5
1000000000 1000000000 1000000000 1000000000 1000000000
```

Sample Output 2 Copy

```
5000000005
```

Sample Input 3 Copy

```
8
2 3 3 1 2 1 3 1
3 4 1 2 5 3 1 2
```

Sample Output 3 Copy

```
23
```

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