

Contest Duration: 2025-05-03(Sat) 22:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250503T2100&p1=248>) - 2025-05-03(Sat) 23:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250503T2240&p1=248>) (local time) (100 minutes)

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E - Bowls and Beans

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Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 475 points

Problem Statement

There are N large bowls arranged in a row, numbered $0, 1, \dots, N - 1$ from the left.

For each bowl i ($1 \leq i \leq N - 1$), an integer C_i is written on it, and initially it contains A_i beans.

Bowl 0 has no integer written on it and initially contains no beans.

Consider repeating the following operation any number of times:

- Choose one bowl i ($1 \leq i \leq N - 1$) and take out one or more beans from it.
- Distribute the taken beans freely among bowls $i - C_i, i - C_i + 1, \dots, i - 1$.
 - Formally, when you take out k beans, you must put a total of k beans into bowls $i - C_i, i - C_i + 1, \dots, i - 1$, and you may choose how many beans go into each bowl.

Find the minimum number of operations required to put all the beans into bowl 0 .

Constraints

- All input values are integers.
- $2 \leq N \leq 2000$
- $1 \leq C_i \leq i$
- $0 \leq A_i \leq 1$

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$$\bullet \sum_{i=1}^{N-1} A_i > 0$$

Input

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

```
N
C1 C2 ... CN-1
A1 A2 ... AN-1
```

Output

Output the answer as an integer.

Sample Input 1 Copy

```
5
1 1 2 1
1 0 0 1
```

Copy

Sample Output 1 Copy

```
3
```

Copy

For example, the following three operations put all the beans into bowl 0, and this is the minimum:

- Choose bowl 4. It has 1 bean.
 - Put 1 bean into bowl 3.
- Choose bowl 3. It has 1 bean.
 - Put 1 bean into bowl 1.
- Choose bowl 1. It has 2 beans.
 - Put 2 beans into bowl 0.

Sample Input 2 Copy

```
6
1 2 1 3 1
1 1 0 1 1
```

Sample Output 2

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```
4
```

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For example, the following four operations put all the beans into bowl 0, and this is the minimum:

- Choose bowl 5. It has 1 bean.
 - Put 1 bean into bowl 4.
- Choose bowl 4. It has 2 beans.
 - Put 1 bean into bowl 1.
 - Put 1 bean into bowl 2.
- Choose bowl 1. It has 2 beans.
 - Put 2 beans into bowl 0.
- Choose bowl 2. It has 2 beans.
 - Put 2 beans into bowl 0.

Sample Input 3

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```
16
1 1 1 2 5 1 1 3 4 1 4 3 1 1 2
1 0 0 0 1 0 0 1 1 0 0 0 0 0 1
```

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Sample Output 3

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```
7
```

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