

Candy Distribution

Alice is a teacher that loves her students. As the school year reaches its end, she wants to reward all her students with candies for all their hard work.

Since each of her classes is unique, she decided she'll give a different kind of candy for each class, and in order to avoid students being mad at others in their class, she wants to make things fair by giving all students in the same class the same kind of candy.

Happily, she went to the candy shop, and fortunately found out that it had N different types of candy, exactly the same number of classes of students she taught!

Looking at the prices and paying close attention to the number of students in each class, Alice noted that she could save some money by assigning the types of candy to certain classes. Because she's a teacher, her income is not that big and saving money is very important to her, so she asked you to write a program to determine the least amount of money she must spend.

Input

Each test case consists of three lines. The first line contains a positive integer N ($1 \leq N \leq 100000$). The second line contains N integers C_i , the i^{th} integer indicates the number of students in Alice's i -th class. The third and last line also contains N integers P_i the i^{th} integer indicates the price of the i^{th} type of candy ($1 \leq C_i, P_i \leq 100000$).

The input ends with a line consisting of a **0**, which indicates end of input.

Output

For each test case, output a line containing the least amount of money Alice must spend.

Example

Input:

```
4
1 1 1 1
2 2 2 2
5
10 80 37 22 109
6 8 8 20 15
0
```

Output:

```
8
2120
```