Servers

Suppose we want to replicate a file over a collection of n servers, labeled S_1, S_2, ..., S_n. To place a copy of the file at server S_i results in a placement cost of c_i, for an integer $c_i > 0$. Now, if a user requests the file from server S_i, and no copy of the file is present at S_i, then the servers S_{i+1}, S_{i+2}, S_{i+3}... are searched in order until a copy of the file is finally found, say at server S_j, where $j > i$. This results in an access cost of $j–i$. (Note that the lower-indexed servers $S_{i–1}$, $S_{i–2}$, ... are not consulted in this search.) The access cost is 0 if S_i holds a copy of the file. We will require that a copy of the file be placed at server S_n, so that all such searches will terminate, at the latest, at S_n. We'd like to place copies of the files at the servers so as to minimize the sum of placement and access costs. Formally, we say that a configuration is a choice, for each server S_i with $i = 1$, 2, ..., $n–1$, of whether to place a copy of the file at S_i or not. (Recall that a copy is always placed at S_n.) The total cost of a configuration is the sum of all placement costs for servers with a copy of the file, plus the sum of all access costs associated with all n servers.
Write a program which reads from the standard input the placement costs and writes a single number, the minimum cost of a configuration. First line of the input consists of the number n of servers ($1 \le n \le 1000$). In the next n lines you are given the placement costs, in line $i + 1$ you are given the placement cost c_i of server S_i.

Example

For the input:
4
1
1
1
9
the answer is:
12
and for the input:
4
4
3
2
1
the answer is:
6