

## Looking for oil

**Task:** You know that there are some oil fields in a large plot of land which you would like to buy. The owner is forthcoming and does not insist on selling the entire plot, however, since he runs a large farming operation and is worried about his efficiency, he is only willing to sell you a single rectangular piece of his land. So, in order to find a good rectangle, you subdivide the quadratic plot into  $n \times n$  quadratic parcels. For each parcel you estimate the difference between buying it and the selling value of the pumped up oil (the profit). Now you search for an optimal rectangle composed of parcels.

What is the maximum profit you can achieve?

**Input:** The first line contains  $n$ , where you can assume that  $1 \leq n \leq 300$ . Then, a single line follows. It contains the individual profits of each parcel, i.e., there are  $n^2$  many integer values with values in  $\{-100, \dots, 100\}$ .

We go down from north to south and from west to east, i.e., the first  $n$  numbers describe the profits in the parcels, which are furthest in the north, from west to east.

**Output:** Output the maximum profit you could obtain.

**Sample Input:**

```
3
-1 4 -1 -2 1 2 -2 -1 -3
```

**Sample Output:**

```
6
```