

Looking for oil

Task: You are looking for oil in a Native American reservation. The owner is only willing to sell you a region of the land that forms a rectangle. In order to find a good rectangle, you subdivide the quadratic land 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? Be fast, other companies are also interested.

Input: There will be only a single test case specified. The first line contains n , where you can assume that $1 \leq n \leq 300$. Then, the next line 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:

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3
-1 4 -1 -2 1 2 -2 -1 -3
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Sample Output:

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6
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