

## Problem Statement

One day at Quora, Jerry decides to start a stuffed animal collection on his desk. Fortunately, he comes across a massive tetrahedral pyramid of wombat stuffed animals, where the tetrahedron has side length  $N$ . Some of these stuffed animals, however, are cuter than others, so Jerry only wants to pick the best possible set of stuffed animals.

Given that each stuffed animal is a perfect sphere and has an integer cuteness value, help Jerry pick a (possibly empty) subset of the stuffed animals to pick up such that their sum of values is maximized. Note that the stuffed animals can have negative value, so picking up all the animals is not necessarily optimal. Jerry does not want to disorganize the arrangement, so he cannot take any stuffed animal without taking all of the (up to 3) stuffed animals above it.

See the sample input and diagram to see how the stuffed animals are organized as a tetrahedral pyramid and given as input.

## Constraints

For 100% of the test data,  $1 \leq N \leq 12$

For 40% of the test data  $1 \leq N \leq 6$

## Input Format

Line 1: One integer  $N$

Line 2... $N(N+1)/2+1$ : The formatted pyramid of cuteness values

## Output Format

Line 1: One integer, the maximum sum of values achievable

## Sample Input

```
3
5
-2 -7
-3
1 0 8
0 3
2
```

## Sample Output

```
8
```

## Explanation

The optimal selection is shown in the diagram in bold. It is suboptimal to take 1 because that would require taking -2 as well, which would decrease the total. On the other hand, 8, 3, and 2 should all be taken because those outweigh -3 and -7.

