Triangle sum (IOI 1994 in Sweden)

```
          7
        3   8
      8   1   0
    2   7   4   4
  4   5   2   6   5
```

Your given a number triangle, just like the one above. Write a program that computes the largest sum of numbers such that all the numbers lie on a path starting at the top and ending anywhere in the bottommost row. In a single step, the path may either go diagonally down-left or diagonally down-right.

Input

The first line contains N, the number of rows of the triangle. The next N lines contain the triangle row by row.

Output

Print the largest possible sum.

Limits

There are 5 batches of inputs, every one of them is worth 20 points.

- In batch 1 $N = 2$
- In batch 2 $N = 5$
- In batch 3 $1 \leq N \leq 10$
- In batch 4 $1 \leq N \leq 100$
- In batch 5 $1 \leq N \leq 1000$

Every number in the triangle is an integer from 0 to 99.

Examples

Input	Output
5 7 3 8 8 1 0 2 7 4 4 4 5 2 6 5	30