

## Problem D – Defiant Game

*Author:* Moroni Silverio, FES Acatlán

Jaime is a guinea pig who loves board games, and even though he has taught all his friends how to play them, none has ever been able to defeat him. So some of his friends decided to invent a game where they could win. The game is as follows:

A board with  $c$  columns and 4 rows is given and an integer number is written in each square. also  $2c$  small stones are given. The goal of the game is to put some of the stones (maybe all of them) on the board in such a way that the sum of the numbers in the squares covered by the stones is maximized. With the condition that no 2 stones may be placed in the same square and neither in adjacent squares (vertically or horizontally).

The thing is the game was invented in such a rush no one knows the answer.

Given the board configuration, Could you help our friends determine the maximun sum, so they can verify wether Jaime got the right answer or not.

### Input

The first line of the input contains one integer  $c$  ( $1 \leq c \leq 10^5$ ), representing the number of columns the board has. The next 4 lines contain  $c$  integers each  $b_{ij}$  ( $1 \leq b_{ij} \leq 10^5$ ,  $1 \leq i \leq 4$ ,  $1 \leq j \leq c$ ), representing the board.

### Output

Output a line containing the maximun sum possible after placing the stones.

<b>Sample input 1</b> 2 1 1 1 1 1 1 1 1	<b>Sample output 1</b> 4
<b>Sample input 2</b> 2 5 1 1 5 5 1 1 5	<b>Sample output 2</b> 20