

## D. Three Activities

time limit per test: 2 seconds

memory limit per test: 256 megabytes

Winter holidays are coming up. They are going to last for  $n$  days.

During the holidays, Monocarp wants to try all of these activities **exactly once** with his friends:

- go skiing;
- watch a movie in a cinema;
- play board games.

Monocarp knows that, on the  $i$ -th day, exactly  $a_i$  friends will join him for skiing,  $b_i$  friends will join him for a movie and  $c_i$  friends will join him for board games.

Monocarp also knows that he can't try more than one activity in a single day.

Thus, he asks you to help him choose three **distinct** days  $x, y, z$  in such a way that the total number of friends to join him for the activities  $(a_x + b_y + c_z)$  is maximized.

### Input

The first line contains a single integer  $t$  ( $1 \leq t \leq 10^4$ ) — the number of testcases.

The first line of each testcase contains a single integer  $n$  ( $3 \leq n \leq 10^5$ ) — the duration of the winter holidays in days.

The second line contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $1 \leq a_i \leq 10^8$ ) — the number of friends that will join Monocarp for skiing on the  $i$ -th day.

The third line contains  $n$  integers  $b_1, b_2, \dots, b_n$  ( $1 \leq b_i \leq 10^8$ ) — the number of friends that will join Monocarp for a movie on the  $i$ -th day.

The fourth line contains  $n$  integers  $c_1, c_2, \dots, c_n$  ( $1 \leq c_i \leq 10^8$ ) — the number of friends that will join Monocarp for board games on the  $i$ -th day.

The sum of  $n$  over all testcases doesn't exceed  $10^5$ .

### Output

For each testcase, print a single integer — the maximum total number of friends that can join Monocarp for the activities on three distinct days.

### Example

input	Copy
<pre> 4 3 1 10 1 10 1 1 1 1 10 4 30 20 10 1 30 5 15 20 30 25 10 10 10 5 19 12 3 18 18 6 17 10 13 15 17 19 11 16 3 11 17 17 17 1 17 18 10 15 8 17 3 13 12 10 17 5 4 18 12 4 11 2 16 16 8 4 14 19 3 12 6 7 5 16 3 4 8 11 10 8 10 2 20 3 </pre>	
output	Copy
<pre> 30 75 55 56 </pre>	

### Codeforces Round 916 (Div. 3)

Finished

#### → Virtual participation

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Start virtual contest

#### → Problem tags

brute force dp greedy  
 implementation sortings \*1200

No tag edit access

#### → Contest materials

- Announcement 
- Tutorial 

### Note

In the first testcase, Monocarp can choose day 2 for skiing, day 1 for a movie and day 3 for board games. This way,  $a_2 = 10$  friends will join him for skiing,  $b_1 = 10$  friends will join him for a movie and  $c_3 = 10$  friends will join him for board games. The total number of friends is 30.

In the second testcase, Monocarp can choose day 1 for skiing, day 4 for a movie and day 2 for board games.  $30 + 20 + 25 = 75$  friends in total. Note that Monocarp can't choose day 1 for all activities, because he can't try more than one activity in a single day.

In the third testcase, Monocarp can choose day 2 for skiing, day 3 for a movie and day 7 for board games.  $19 + 19 + 17 = 55$  friends in total.

In the fourth testcase, Monocarp can choose day 1 for skiing, day 4 for a movie and day 9 for board games.  $17 + 19 + 20 = 56$  friends in total.

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