Bricks

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

There are n piles of bricks, and the i-th pile contains a_i pieces of bricks.

Now, your opponent and you take turns operating, and your opponent will play first. Each time, one can choose a pile of bricks and remove some of them. One loses when unable to perform an operation.

Before the game starts, you can choose to remove or insert some pieces of bricks. You are allowed to remove one brick pile entirely, but not to create a new pile. By removing or inserting a brick, you will spend 1 point of energy. Find the minimum points of energy you need to win the game.

Input

The first line contains an integer $T(1 \leq T \leq 10)$, indicating the number of test cases.

$2 * T$ lines follow. Every two adjacent lines describe a test case.

The first line of a test case contains an integer $N(1 \leq N \leq 10^5)$, indicating the number of piles. The second line of a test case contains N integers, $a_1, a_2, \cdots a_n(0 \leq a_i \leq 10^9)$, indicating the number of bricks in each pile.

Output

For each test case, output a single integer in a line representing the minimum energy needed to win.

Example

standard input	standard output
4 2 1 7 3 1 1 1 4 1 2 5 20 5 1 15 20 35 100	6 1 12 37