Parallel Processing

Problem Code: **PLPROCESS**

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There are N tasks waiting in line to be executed. The execution time for the i^{th} task is A_i seconds.

Chef has **two processors** to execute these N tasks. Both these processors work simultaneously. Each processor executes the assigned tasks one by one.

Chef assigns a **prefix** of these tasks to the first processor and the remaining tasks to the second processor.

For example, if there are 3 tasks, Chef can do one of the following:

- Assign no task to the first processor. This means, the second processor will execute tasks $1, 2$ and 3.
- Assign task 1 to the first processor. This means, the second processor will execute tasks 2 and 3.
- Assign tasks 1 and 2 to the first processor. This means, the second processor will execute task 3.
- Assign tasks $1, 2$ and 3 to the first processor. Thus, second processor would execute no tasks.

Find the **minimum** time in which all the tasks can be executed.

Input Format

- First line will contain T, number of test cases. Then the test cases follow.
- The first line of each test case contains a single integer N, the number of tasks waiting to be executed.
- The second line of each test case contains N space separated positive integers $A_1, A_2, \ldots, A_N$ denoting the execution time for each task.

Output Format

For each test case, output in a single line, the minimum time in which all tasks can be executed.

Constraints

- $1 \leq T \leq 100$
- $1 \leq N \leq 10^5$
- $1 \leq A_i \leq 10^5$
- The sum of N over all test cases is not more than $2 \cdot 10^5$.

Subtasks

Subtask #1 (100 points): original constraints

Sample Input 1

```
3
3
4 2 3
6
1 1 1 1 1 1
1
5
```

Sample Output 1

```
5
3
5
```

Explanation

Test Case 1: Chef assigns task 1 to the first processor and tasks 2 and 3 to the second processor. The first processor takes 4 seconds to execute task 1. The second processor takes $2 + 3 = 5$ seconds to execute tasks 2 and 3. Thus, atleast 5 seconds are required to execute all tasks.

Test Case 2: Chef assigns tasks $1, 2$ and 3 to the first processor. Processes $4, 5$ ad 6 are executed by second processor.

Test Case 3: Chef assigns task 1 to the first processor. No task is executed by second processor.

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Time Limit:	1 secs
Source Limit:	50000 Bytes
Languages:	CPP17, PYTH 3.6, JAVA, C, CPP14, PYTH, PYP3, CS2, ADA, PYPY, TEXT, PAS fpc, NODEJS, RUBY, PHP, GO, HASK, TCL, kotlin, PERL, SCALA, LUA, BASH, JS, rust, LISP sbcl, PAS gpc, BF, CLOJ, R, D, CAML, swift, FORT, ASM, FS, WSPC, LISP clisp, SQL, SCM guile, PERL6, ERL, CLPS, PRLG, SQLQ, ICK, NICE, ICON, COB, SCM chicken, PIKE, SCM qobi, ST, NEM

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