

### A. Circuit

time limit per test: 1 second  
memory limit per test: 256 megabytes

Alice has just crafted a circuit with  $n$  lights and  $2n$  switches. Each component (a light or a switch) has two states: on or off. The lights and switches are arranged in a way that:

- Each light is connected to **exactly two** switches.
- Each switch is connected to **exactly one** light. It's **unknown** which light each switch is connected to.
- When all switches are off, all lights are also off.
- If a switch is toggled (from on to off, or vice versa), the state of the light connected to it will also toggle.

Alice brings the circuit, which shows only the states of the  $2n$  switches, to her sister Iris and gives her a riddle: what is the minimum and maximum number of lights that can be turned on?

Knowing her little sister's antics too well, Iris takes no more than a second to give Alice a correct answer. Can you do the same?

#### Input

Each test consists of multiple test cases. The first line contains a single integer  $t$  ( $1 \leq t \leq 500$ ) — the number of test cases. The description of the test cases follows.

The first line of each test case contains a single integer  $n$  ( $1 \leq n \leq 50$ ) — the number of lights in the circuit.

The second line of each test case contains  $2n$  integers  $a_1, a_2, \dots, a_{2n}$  ( $0 \leq a_i \leq 1$ ) — the states of the switches in the circuit.  $a_i = 0$  means the  $i$ -th switch is off, and  $a_i = 1$  means the  $i$ -th switch is on.

#### Output

For each test case, output two integers — the minimum and maximum number of lights, respectively, that can be turned on.

#### Example

input	Copy
5 1 0 0 1 0 1 1 1 1 3 0 0 1 0 1 0 3 0 1 1 1 0 0	
output	Copy
0 0 1 1 0 0 0 2 1 3	

#### Note

#### Codeforces Round 983 (Div. 2)

Contest is running

00:06:39

Contestant



#### → Submit?

Language: Python 3.8.10  
Almost always, if you send a solution on PyPy, it works much faster

Choose file: Choose File No file chosen

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

Submit

#### → Last submissions

Submission	Time	Verdict
<a href="#">289265591</a>	Nov/01/2024 19:02	Wrong answer on pretest 1
<a href="#">289264396</a>	Nov/01/2024 19:00	Wrong answer on pretest 1

#### → Score table

	Score
<a href="#">Problem A</a>	274
<a href="#">Problem B</a>	411
<a href="#">Problem C</a>	685
<a href="#">Problem D</a>	959
<a href="#">Problem E</a>	1233
<a href="#">Problem F</a>	1644
Successful hack	100
Unsuccessful hack	-50
Unsuccessful submission	-50
Resubmission	-50

\* If you solve problem on 01:53 from the first attempt

In the first test case, there is only one light in the circuit, and no switch is on, so the light is certainly off.

In the second test case, there is only one light in the circuit, but one switch connected to it is on, so the light is on.

In the third test case, there is only one light in the circuit, and both switches are on, so the light is off as it was toggled twice.

In the fourth test case, to have no lights on, the switches can be arranged in this way:

- Switch 1 and switch 4 are connected to light 1. Since both switches are off, light 1 is also off.
- Switch 2 and switch 6 are connected to light 2. Since both switches are off, light 2 is also off.
- Switch 3 and switch 5 are connected to light 3. Both switches are on, so light 3 is toggled twice from its initial off state, and thus also stays off.

And to have 2 lights on, the switches can be arranged in this way:

- Switch 1 and switch 2 are connected to light 1. Since both switches are off, light 1 is also off.
- Switch 3 and switch 4 are connected to light 2. Since switch 3 is on and switch 4 is off, light 2 is toggled once from its initial off state, so it is on.
- Switch 5 and switch 6 are connected to light 3. Since switch 5 is on and switch 6 is off, light 3 is toggled once from its initial off state, so it is on.

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