# Google Code Jam '15 Round 1A Problem A - Mushroom Monster

**Time limit:** 60.0s    **Memory limit:** 1G

Kaylin loves mushrooms. Put them on her plate and she'll eat them up! In this problem she's eating a plate of mushrooms, and Bartholomew is putting more pieces on her plate.

In this problem, we'll look at how many pieces of mushroom are on her plate at 10-second intervals. Bartholomew could put any non-negative integer number of mushroom pieces down at any time, and the only way they can leave the plate is by being eaten.

Figure out the minimum number of mushrooms that Kaylin could have eaten using two different methods of computation:

1. Assume Kaylin could eat any number of mushroom pieces at any time.
2. Assume that, starting with the first time we look at the plate, Kaylin eats mushrooms at a constant rate whenever there are mushrooms on her plate.

For example, if the input is `10 5 15 5`:

With the first method, Kaylin must have eaten at least $15$ mushroom pieces: first she eats $5$, then $10$ more are put on her plate, then she eats another 10. There's no way she could have eaten fewer pieces.

With the second method, Kaylin must have eaten at least $25$ mushroom pieces. We can determine that she must eat mushrooms at a rate of at least $1$ piece per second. She starts with $10$ pieces on her plate. In the first $10$ seconds, she eats $10$ pieces, and $5$ more are put on her plate. In the next $5$ seconds, she eats $5$ pieces, then her plate stays empty for $5$ seconds, and then Bartholomew puts $15$ more pieces on her plate. Then she eats $10$ pieces in the last $10$ seconds.

## Input Specification

The first line of the input gives the number of test cases, $T$. $T$ test cases follow. Each will consist of one line containing a single integer $N$, followed by a line containing $N$ space-separated integers $m_i$; the number of mushrooms on Kaylin's plate at the start, and at 10-second intervals.

## Output Specification

For each test case, output one line containing `Case #x: y z`, where $x$ is the test case number (starting from 1), $y$ is the minimum number of mushrooms Kaylin could have eaten using the first method of computation, and $z$ is the minimum number of mushrooms Kaylin could have eaten using the second method of computation.

## Limits

Memory limit: 1 GB.

$1 \leq T \leq 100$.

## Small Dataset

Time limit: 30 seconds.

$2 \leq N \leq 10$.

$0 \leq m_i \leq 100$.

## Large Dataset

Time limit: 60 seconds.

$2 \leq N \leq 1000$.

$0 \leq m_i \leq 10\,000$.

## Sample Input

```
4
4
10 5 15 5
2
100 100
8
81 81 81 81 81 81 81 0
6
23 90 40 0 100 9
```

## Sample Output

```
Case #1: 15 25
Case #2: 0 0
Case #3: 81 567
Case #4: 181 244
```

## Note

This problem has different time limits for different batches. If you exceed the Time Limit for any batch, the judge will incorrectly display `>60.000s` regardless of the actual time taken. Refer to the **Limits** section for batch-specific time limits.

This problem originally had a much higher time limit. However, as reference solutions were much faster, the Time Limit was been reduced accordingly.