2048

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

Alice is playing a game similar to **2048**.

In this game, an integer array $a_1, a_2...a_n$ of length n is given. Each a_i can be written as an integer power of 2. Formally speaking, $a_i = 2^{k_i}$.

Alice could perform an operation called **merge**. In each **merge** operation, Alice can choose two adjacent and equal numbers, and then replace the two numbers with their sum. Formally speaking, Alice can choose an integer $i(1 \le i < n)$ which satisfies $a_i = a_{i+1}$, then change the value of a_i to $a_i + a_{i+1}$ and delete a_{i+1} from the array.

For example, Alice can choose $i = 2$ for the array $[2, 4, 4, 8, 4]$ to perform a **merge**. After the **merge**, the array becomes $[2, 8, 8, 4]$. Note that after Alice obtains a new array of length $n - 1$ by **merge**, she can continue to **merge** on the new array, which means Alice can perform the operation **merge** multiple times (possibly zero times).

She wants to figure out **the maximum number** in all the possible arrays she could obtain and **the minimum operations** she has to obtain such array.

Input

The first line contains an integer $n(1 \le n \le 10^5)$, indicating the length of the given array.

The second line consists of n integers $k_i(1 \le i \le n, 1 \le k_i \le 100)$, indicating $a_i = 2^{k_i}$

Output

Output two integers K, T in a line, separated by a space, indicating the maximum power of 2 (maximum number $= 2^K$, in other words) Alice could get and the minimum number of **merge** she has to perform to get the array (T=0 if Alice does not need any operation).

Examples

standard input	standard output
7 1 3 1 1 2 2 1	4 3
5 100 90 90 90 90	100 0

Note

In the first sample, the maximum number is 2^4 and it needs at least 3 operations. It can be obtained by following operations:

The first **merge**: choose $i = 3$, and Alice will obtain new array $[2, 8, 4, 4, 4, 2]$.

The second **merge**: choose $i = 3$, and Alice will obtain new array $[2, 8, 8, 4, 2]$.

The third **merge**: choose $i = 2$, and Alice will obtain new array $[2, 16, 4, 2]$.