UESTC 2016 Summer Training #12 Div.2

I - 你对我就像哥哥一样好

Time Limit:2000MS **Memory Limit:**65536KB **64bit IO Format:**%I64d & %I64u

Submit Status

Description

standard input/output
Statements
X is fighting beasts in the forest, in order to have a better chance to survive he's gonna buy upgrades for his weapon. Weapon upgrade shops are available along the forest, there are n shops, where the i^{th} of them provides an upgrade with energy a_i. Unfortunately X can make use only of the maximum power of two that divides the upgrade energy, lets call it the *powerincrement*. For example, an upgrade with energy of 6 has a power increment of 1 because 6 is divisible by 2^1 but not divisible by 2^2 or more, while for upgrade with energy of 5 power increment is 0, also after buying a weapon with energy v, X can only buy upgrades with *energies* greater than v, in other words, the upgrades energies that X is gonna buy should be in strictly increasing order. X is wondering what is the maximum power he can achieve at the end of his journey. note that only the energy of upgrades should be in strictly increasing order not the power increment of the upgrade. $1 < n < 100$, $1 \le a_i \le 10^6$

Input

The first line of input contains one integer, T, which denotes number of test cases. Each test case contains two lines, the first one contains one integer n which denotes number of shops, and the next line contains n integers the i^{th} of them denotes the energy of the upgrade provided by the i^{th} shop.

Output

Print one integer denotes maximum power X can achieve at the end of his journey

Sample Input

Input
2 3 1 10 16 2 8 12
Output
5 5

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