C Hyper-Box

Input: Standard Input
Output: Standard Output

You live in the universe **X** where all the physical laws and constants are different from ours. For example all of their objects are **N**-dimensional. The living beings of the universe **X** want to build an **N**-dimensional monument. We can consider this **N** dimensional monument as an **N**-dimensional hyper-box, which can be divided into some **N** dimensional hyper-cells. The length of each of the sides of a hyper-cell is one. They will use some **N**-dimensional bricks (or hyper-bricks) to build this monument. But the length of each of the **N** sides of a brick cannot be anything other than fibonacci numbers. A fibonacci sequence is given below:

1, 2, 3, 5, 8, 13, 21….

As you can see each value starting from **3** is the sum of previous **2** values. So for **N=3** they can use bricks of sizes **(2,5,3)**, **(5,2,2)** etc. but they cannot use bricks of size **(1,2,4)** because the length **4** is not a fibonacci number. Now given the length of each of the dimension of the monument determine the minimum number of hyper-bricks required to build the monument. No two hyper-bricks should intersect with each other or should not go out of the hyper-box region of the monument. Also none of the hyper-cells of the monument should be empty.

Input

First line of the input file is an integer **T(1≤T≤100)** which denotes the number of test cases. Each test case starts with a line containing **N (1≤N≤15)** that denotes the dimension of the monument and the bricks. Next line contains **N** integers the length in each dimension. Each of these integers will be between **1** and **2000000000** inclusive.

Output

For each test case output contains a line in the format **Case x: M** where **x** is the case number (starting from **1**) and **M** is the minimum number of hyper-bricks required to build the monument.

Sample Input	Output for Sample Input
2 2 4 4 3 5 7 8	Case 1: 4 Case 2: 2

Problemsetter: Abdullah al Mahmud, Special Thanks: Arifuzzaman Arif