P11. Jumping Around

(Time Limit: 3 seconds)

John, Jill and Jeremy are planning their vacation trip. They would like to visit all planets in their planetary system. They are planning to use *Telejump* teleport system which was recently installed at all planets. There are n planets in the planetary system, numbered from 0 to $n - 1$. John, Jill and Jeremy are planning to start their journey from planet 0 and can finish it at any planet.

Telejump uses three types of tickets for their system. Ticket of the first type allows to travel from planet x to planet $x + 1$ (when $x + 1 \le n - 1$) or to planet $x - 1$ (when $x - 1 \ge 0$). Ticket of the second type allows to travel from planet x to planet $x + 2$ (when $x + 2 \le$ n − 1) or to planet $x - 2$ (when $x - 2 \ge 0$). Finally, ticket of the third type allows to travel from planet x to planet $x + 3$ (when $x + 3 \le n - 1$) or to planet $x - 3$ (when $x - 3 \ge 0$).

Friends have bought a tickets of the first type, b tickets of the second type and c tickets of the third type. Tickets are quite expensive, so they have bought the minimal number of tickets they need to visit all planets: $a + b + c = n - 1$. However, all three of friends collect used *Telejump* tickets, so they have bought at least 3 tickets of each type (yes, you can deduce from these facts that $n \ge 10$).

Now they would like to plan their trip.

Help John, Jill and Jeremy to choose in which order they should visit planets, so that they could visit each planet by using their tickets.

Input

The input file contains several test cases. The first line of the input file contains t — the number of test cases ($1 \le t \le 20$).

Each of the following t lines contains three integers each: a_i , b_i and c_i ($3 \le a_i$, b_i , $c_i \le 5000$). For such test case n_i is equal to $a_i + b_i + c_i + 1$.

Output

Output one line for each test case in the input. Each line must contain ni integers separated by spaces: planet numbers in the order friends should visit them to use their tickets.

If there are several solutions, output any one. It is guaranteed that for each test case from the input file solution always exists.

Note for the Sample:

In the first example above there are 3 tickets of each type, therefore there are 10 planets numbered from 0 to 9. Friends start at planet 0. They use tickets of the first type for their jumps 1 → 2, 5 → 4, and 7 → 8, tickets of the second type for jumps 3 → 1, 4 → 6, and 9 → 7, and tickets of the third type for jumps 0 → 3, 2 → 5, and 6 → 9.

Sample Input

2

3 3 3

3 4 3

Sample Input

0 3 1 2 5 4 6 9 7 8

0 3 1 2 5 4 6 9 7 8 10

P12. Number Sequence

(Time Limit: 3 seconds)

A single positive integer i is given. Write a program to find the digit located in the position i in the sequence of number groups $S_1S_2 \ldots S_k$. Each group S_k consists of a sequence of positive integer numbers ranging from 1 to k, written one after another. For example, the first 80 digits of the sequence are as follows:

11212312341234512345612345671234567812345678912345678910123456789101112345678910

Input

The first line of the input file contains a single integer t ($1 \leq t \leq 25$), the number of test cases, followed by one line for each test case. The line for a test case contains the single integer i ($1 \leq i \leq 2147483647$)

Output

There should be one output line per test case containing the digit located in the position i.

Sample Input

```
2
8
3
```

Sample Output

```
2
2
```