Develop Group Competition 2

Office Movement

Input：standard input
Output：standard output

Nokia has a round building, which has n office rooms in each floor, 1≤n≤30000.

Room i (1<i<n) is adjacent to room i-1 and i+1; room 1 is adjacent to room 2 and room n; room n is adjacent to room 1 and room n-1.

Room i (1≤i≤n) is good to serve from Min_i to Max_i person, (0≤Min_i ≤ Max_i).

Initially there are $Init_i$ person in the room i, (0≤$Init_i$).

You task is to move a person from a room to its adjacent room each step, and use the less steps to make finally the person in room i ($Final_i$) is in a good condition, (Min_i≤$Final_i$≤Max_i).

Input

The first line contains one integer n (1≤n≤30000).

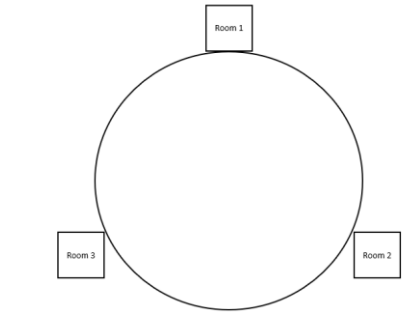
Each of next n lines has three integers. The line i contains integers Min_i, Max_i and $Init_i$.

Output

The first line contains one integer m, the number of steps in your movement.

Each of next m lines have two integers x, y, means moving one person from room x to room y. Please make sure the room x and room y are adjacent.

Example

Input: 3 1 3 5 2 4 3 3 3 0	
Output: 3 1 3 1 3 1 3	