Abhi and Bhanu are best buddies. One day Bhanu gives Abhi a problem to test his intelligence. He gives him an array of N natural numbers and asks him to solve the following queries:-

Query 0:- modify the element present at index **i** to **x**.
Query 1:- count the number of even numbers in range **l** to **r** inclusive.
Query 2:- count the number of odd numbers in range **l** to **r** inclusive.

input:
First line of the input contains the number **N**. Next line contains **N** natural numbers.
Next line contains an integer **Q** followed by **Q** queries.
0 x y - modify the number at index **x** to **y**.
1 x y - count the number of even numbers in range **l** to **r** inclusive.
2 x y - count the number of odd numbers in range **l** to **r** inclusive.

Constraints:
1<=**N**,**Q**<=10^5
1<=**l**<=**r**<=N
0<=A_i<=10^9
1<=**x**<=N
0<=**y**<=10^9

Note:- indexing starts from 1.

SAMPLE INPUT	SAMPLE OUTPUT
6 1 2 3 4 5 6 4 1 2 5 2 1 4 0 5 4 1 1 6	2 2 4