Problem A. Morse Code

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

Consider an infinite sequence M of zeroes ans ones. The k-th element ($k \geq 0$) of this sequence is "1" if the number of 1-bits in the binary notation of k is odd and "0" if it's even.

This sequence starts as follows:

$$M = 0, 1, 1, 0, 1, 0, 0, 1, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 0, 1, 0, 1, 1, 0, 0, 1, 1, 0, 1, \ldots$$

Let's define the dot product of two sequences, say $a_1, a_2, \ldots, a_m$ and $b_1, b_2, \ldots, b_m$, as $\sum_{i=1}^{m} a_i \cdot b_i$.

You are given an array A of integer numbers. Your task is for every query (x, y, k) to find the dot product of sequences $A_x, A_{x+1}, \ldots, A_{x+k-1}$ and $M_y, M_{y+1}, \ldots, M_{y+k-1}$.

Input

The first line of the input contains a single integer n ($1 \leq n \leq 10^5$). The next line contains n integers — elements of the array A ($1 \leq A_i \leq 10^4$). The third line contains an integer m followed by m lines each containing three integers x, y and k — the queries you need to answer ($1 \leq m \leq 10^5$; $1 \leq x \leq n$; $1 \leq k \leq n - x + 1$; $0 \leq y \leq 10^9$).

Output

For each query, output a single number on a separate line — the value of the sought dot product.

Example

standard input	standard output
7 1 2 3 4 5 6 7 5 1 1 7 2 100 5 7 2 1 3 4 5 4 3 3	14 13 7 16 5