

Problem B. Zhylan.io

Input file: **standard input**
Output file: **standard output**
Time limit: **3 seconds**
Memory limit: **512 megabytes**

“Zhylan.io” is an online multiplayer game where players control snakes. Suppose m players are competing in a match. Let’s assign each player a number from 1 to m . The i -th player controls a snake with length b_i . The i -th player’s snake can attack the j -th ($i \neq j$) player’s snake only if the condition $b_i - b_j \geq k$ is met. In which case, player j leaves the match while the length of i -th player’s snake increases by b_j . The number k is chosen before the start of a match, and could differ from match to match.

A match continues until there are no possible attacks left. If, at the end of a match, only one player remains, he becomes a winner of that match. Otherwise, the match ends in a draw and with no winners.

Vitya is a huge fan of “Zhylan.io” with tons of experience. He claims, that for any match, he is able to correctly predict the number of players that could win that match.

Batyr decided to check Vitya’s abilities. So, he wrote down an array of positive integers a of length n .

Then, Batyr asks Vitya q questions of the following type.

- If a match between players with snakes (a_l, \dots, a_r) and a parameter k was to start, how many of these players could possibly win?

Actually, Vitya lied and now asks for your help to answer Batyr’s questions. Help him.

Input

The first line contains two numbers n and q ($2 \leq n \leq 2 \cdot 10^5$, $1 \leq q \leq 2 \cdot 10^5$) — the size of an array a and the number of Batyr’s questions.

Second line contains n integers a_1, \dots, a_n ($1 \leq a_i \leq 10^9$).

Then, q lines follow. Each line contains three integers l_i, r_i and k_i ($1 \leq l_i < r_i \leq n$, $0 \leq k_i \leq 10^9$) — descriptions of questions.

Output

For each of Batyr’s questions print a single integer in separate line — answer to Batyr’s question.

Scoring

| Subtask | Additional constraints | Points | Necessary subtasks |
|---------|---|--------|--------------------|
| 0 | Samples | 0 | — |
| 1 | $n, q \leq 500$ | 7 | 0 |
| 2 | $n, q \leq 3000$ | 15 | 1 |
| 3 | $a_1 \leq a_2 \leq \dots \leq a_n$ | 24 | — |
| 4 | $n, q \leq 5 \cdot 10^4, a_i \leq 10^6$ | 20 | 0 |
| 5 | $n, q \leq 10^5$ | 19 | 2, 4 |
| 6 | — | 15 | 3, 5 |

Examples

| standard input | standard output |
|--|------------------|
| 6 4 3 1 5 3 7 5 1 6 1 4 6 4 1 4 2 2 3 5 | 5 1 1 0 |
| 3 2 3 3 3 1 3 1 1 3 0 | 0 3 |