Basketball tournament

Barry is the coach of a basketball club. There are n players in the team, and player i has a height of h_i cm.

- Function $f(i, j)$ is the measure of the teamwork between player i and j. Then $f(i, j) = h_i + h_j$.

- Function $P(S)$ is the power of set S, consisting some players. Then $P(S) = \sum f(i, j)$, for all i and j, where i and j are players in set S.

For example, there are 2 players in set, with $h_i = \{2, 3\}$, and indexes $1, 2$ respectively. Then power of this set is equal to $f(1, 1) + f(1, 2) + f(2, 1) + f(2, 2) = 4 + 5 + 5 + 6$.

The team is going to take part in a tournament. There are m rounds in the tournament, each of them having some conditions.

For round i, the requirments:

There are three positive integers l_i, r_i, x_i. To participate in round i, Barry needs to find minimal K such that there's at least one consecutive subsequence of players between l and r, where height of each player in this subsequence is at most K, and **power** of this subsequence is not less than x_i. If there exists such K, Barry's team is able to participate in round i. Otherwise, the team is not eligible.

You need to help him determine for every round, is it possible to participate in that round. If it is possible, print minimal K for round i, otherwise print -1.

Input Format

The first line contains two integers n and m - the number of players and rounds respectively.

The second line contains array of n postive integers h_i.

The next m lines contains three positve integers: l_i, r_i, x_i.

Constraints

- $1 \le n, m \le 3 \cdot 10^5$

- $1 \le h_i \le 10^7$

- $1 \le l_i \le r_i \le n$

- $1 \le x_i \le 10^{18}$

At least for 25% of the total score, $1 \le n, m \le 5000$.

At least for 75% of the total score, $1 \le n, m \le 50000$.

Output Format

For every round print minimal K if it's possible, otherwise print -1.

Sample Input 0

```
5 2
1 1 2 3 4
1 5 2
1 5 11
```

Sample Output 0

```
1
2
```

Sample Input 1

```
5 4
1 3 2 4 6
1 3 3
1 3 2
2 4 10
1 1 900
```

Sample Output 1

```
2
1
3
-1
```