Freshers' Meet

HackerRank

Piyumi is the coach of a netball team in the Faculty of Engineering. In the freshers meet, 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 of some players. Then $P(S) = f(i, j)$, for all i and j, where i and j are players in set S.

For example there are 2 players in the 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 requirements: There are three positive integers l_i, r_i, x_i. To participate in round i, Piyumi 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 a K, Piyumi's team is able to participate in round i. Otherwise, the team is not eligible. You need to help her 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 an array of n positive integers h_i. The next m lines contains three positive integers: l_i, r_i, x_i

Constraints

$1 \leq n, m \leq 3 \times 10^5$

$1 \leq h_i \leq 10^7$

$1 \leq l_i \leq r_i \leq n$

$1 \leq x_i \leq 10^{18}$

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

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

Output Format

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

Sample Input 0

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5 7
1 2 8 6 3
```

```
1 5 2
1 5 11
1 3 3
1 3 2
1 1 7
2 4 2
1 3 3
```

Sample Output 0

```
1
2
2
1
-1
2
2
```