# G: Lake Viewing

## Time Limit: 3 seconds

Reggie likes walking around lakes. For the purposes of this problem, we will view a lake as a "circle" with some waypoints and bidirectional paths coming off those waypoints and connecting it to other lakes.

Reggie wants to take a walk which walks around all of the lakes in their area exactly once, starting at the first waypoint of the first lake. In particular, each arc of a lake should be walked exactly once (in either direction), and not necessarily consecutively. A path can be walked multiple times in either direction, and can also remain unvisited. Reggie can end at any waypoint of any lake.

Help Reggie figure out if they can walk around all the lakes!

## Input

The first line of input contains a single integer $T$ ($1 \leq T \leq 10^4$), representing the number of test cases.

The descriptions of $T$ test cases follow. Each test case starts with a line containing two integers $n$ and $m$ ($2 \leq n \leq 2 \cdot 10^5, 0 \leq m \leq 2 \cdot 10^5$), the number of lakes and the number of paths, respectively.

The next line contains $n$ integers $a_1, a_2, \ldots, a_n$ ($1 \leq a_i \leq 10^9$), where $a_i$ is the number of waypoints around the $i^{\text{th}}$ lake. Waypoints are numbered in counterclockwise order.

The next $m$ lines each describe one path. Each line contains four integers, $\ell_1$, $i_1$, $\ell_2$, and $i_2$ ($1 \leq \ell_1 < \ell_2 \leq n, 1 \leq i_1 \leq a_{\ell_1}, 1 \leq i_2 \leq a_{\ell_2}$), indicating that there is a path from waypoint $i_1$ on lake $\ell_1$ to waypoint $i_2$ on lake $\ell_2$.

No two paths in the same test case connect the same pair of waypoints.

The sum of $n$ over all test cases will not exceed $2 \cdot 10^5$, and the sum of $m$ over all test cases will not exceed $2 \cdot 10^5$.

## Output

For each test case, output `YES` if Reggie can walk around all of the lakes exactly once starting from waypoint 1 on lake 1, and `NO` otherwise.

| Sample Input 1 | Sample Output 1 |
| --- | --- |
| 2<br>2 1<br>2 2<br>1 1 2 2<br>2 0<br>67 67 | YES<br>NO |