1101. The Earliest Moment When Everyone Become Friends Premium

Medium | Topics | Companies | Hint

There are n people in a social group labeled from `0` to `n - 1`. You are given an array `logs` where `logs[i] = [timestamp_i, x_i, y_i]` indicates that `x_i` and `y_i` will be friends at the time `timestamp_i`.

Friendship is **symmetric**. That means if `a` is friends with `b`, then `b` is friends with `a`. Also, person `a` is acquainted with a person `b` if `a` is friends with `b`, or `a` is a friend of someone acquainted with `b`.

Return *the earliest time for which every person became acquainted with every other person*. If there is no such earliest time, return `-1`.

Example 1:

```
Input: logs = [[20190101,0,1],[20190104,3,4],[20190107,2,3],[20190211,1,5],[20190224,2,4],[20190301,0,3],[20190312,1,2],[20190322,4,5]], n = 6
Output: 20190301
Explanation:
The first event occurs at timestamp = 20190101, and after 0 and 1 become friends, we have the following friendship groups [0,1], [2], [3], [4], [5].
The second event occurs at timestamp = 20190104, and after 3 and 4 become friends, we have the following friendship groups [0,1], [2], [3,4], [5].
The third event occurs at timestamp = 20190107, and after 2 and 3 become friends, we have the following friendship groups [0,1], [2,3,4], [5].
The fourth event occurs at timestamp = 20190211, and after 1 and 5 become friends, we have the following friendship groups [0,1,5], [2,3,4].
The fifth event occurs at timestamp = 20190224, and as 2 and 4 are already friends, nothing happens.
The sixth event occurs at timestamp = 20190301, and after 0 and 3 become friends, we all become friends.
```

Example 2:

```
Input: logs = [[0,2,0],[1,0,1],[3,0,3],[4,1,2],[7,3,1]], n = 4
Output: 3
Explanation: At timestamp = 3, all the persons (i.e., 0, 1, 2, and 3) become friends.
```

Constraints:

- `2 <= n <= 100`
- `1 <= logs.length <= 10^4`
- `logs[i].length == 3`
- `0 <= timestamp_i <= 10^9`
- `0 <= x_i, y_i <= n - 1`
- `x_i != y_i`
- All the values `timestamp_i` are **unique**.
- All the pairs `(x_i, y_i)` occur at most one time in the input.

Seen this question in a real interview before? 1/5

Yes No

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Topics

Array Union Find Sorting

Companies

0 - 3 months

Google 11

0 - 6 months

Expedia 2

6 months ago

Amazon 2

Hint 1

Sort the log items by their timestamp.

Hint 2

How can we model this problem as a graph problem?

Hint 3

Let's use a union-find data structure. At the beginning we have a graph with N nodes but no edges.

Hint 4

Then we loop through the events and unite each node until the number of connected components reach to 1. Notice that each time two different connected components are united the number of connected components decreases by 1.

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