1101. The Earliest Moment When Everyone Become Friends

Medium 560 15 Add to List Share

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 anything happens.
The sixth event occurs at timestamp = 20190301 and after 0 and 3
become friends we have that all become friends.
```

Example 2:

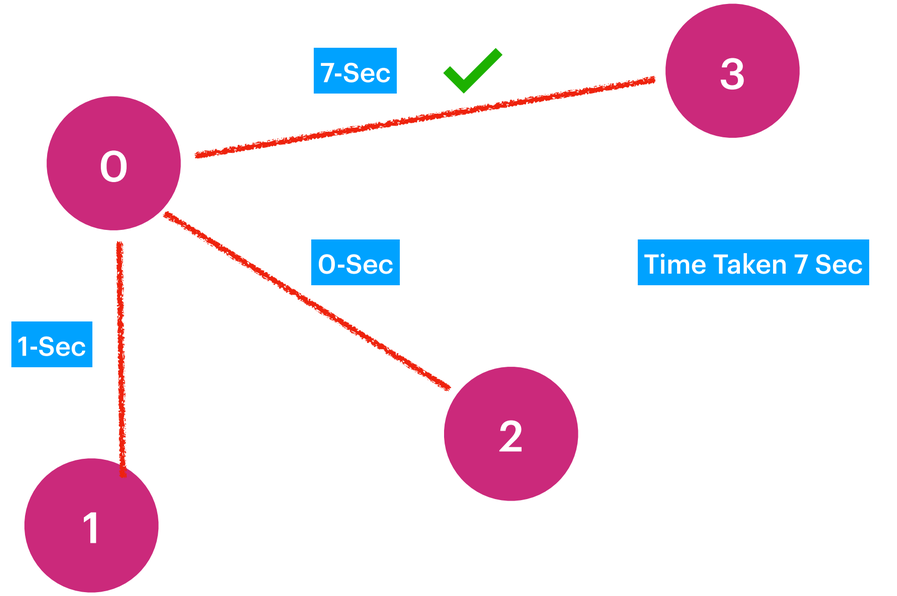
```
Input: logs = [[0,2,0],[1,0,1],[3,0,3],[4,1,2],[7,3,1]], n = 4
Output: 3
```

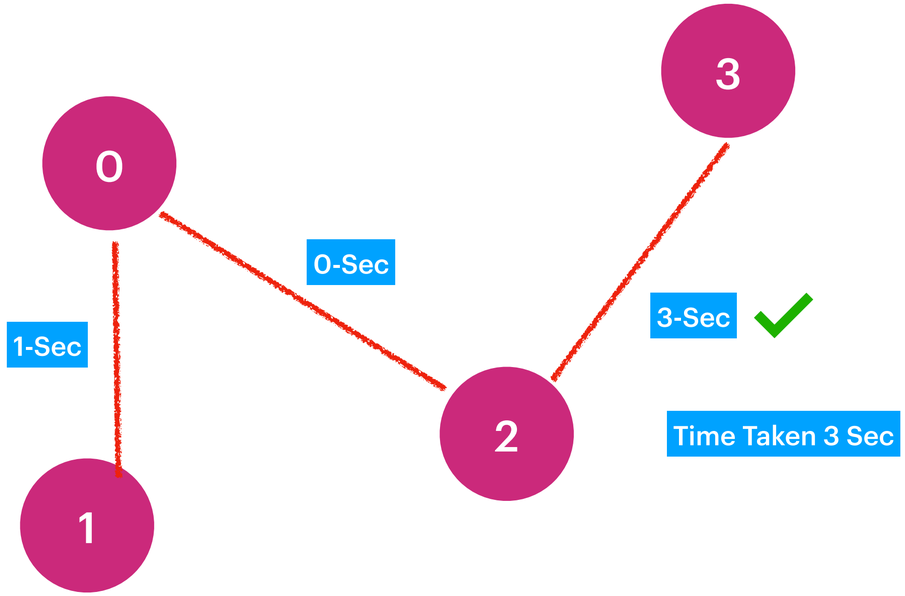
Constraints:

- `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.

Input: logs = [[0,2,0],[1,0,1],[7,0,3],[3,2,3]]
n = 4
Output: 3

Shortest Time to make Graph Well connected





Input: logs = [[0,2,0],[1,0,1],[7,0,3],[3,2,3]]
n = 4 [No.Of Vertices]
Output: 3

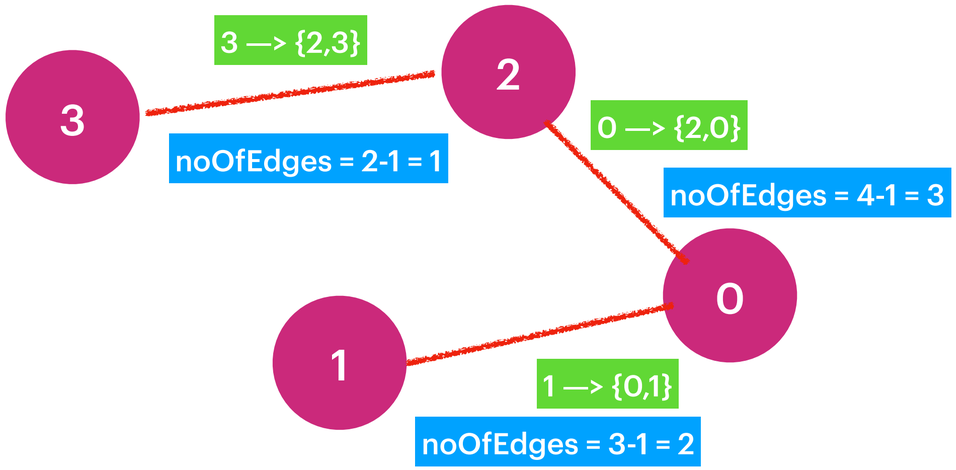
TreeMap<Integer, int[]> map [key:TimeStamp, value : edge]

treeMap

0 —> {2,0}
1 —> {0,1}
3 —> {2,3}
7 —> {0,3}

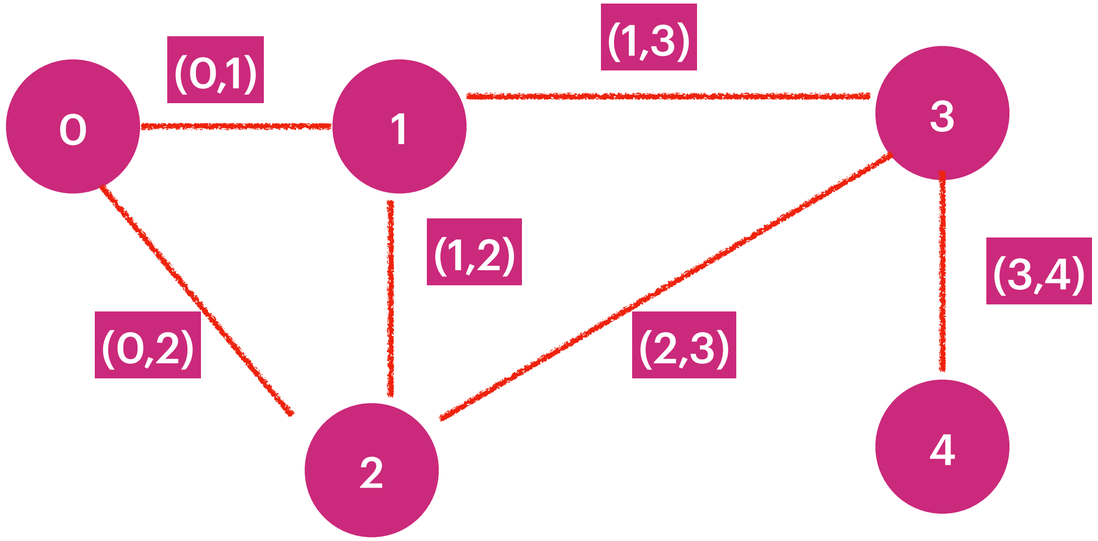
noOfEdges = 4

Time Complexity :
TreeMap : O(nlogn) + Make a Graph O(n)
= O(nlogn)



Graph

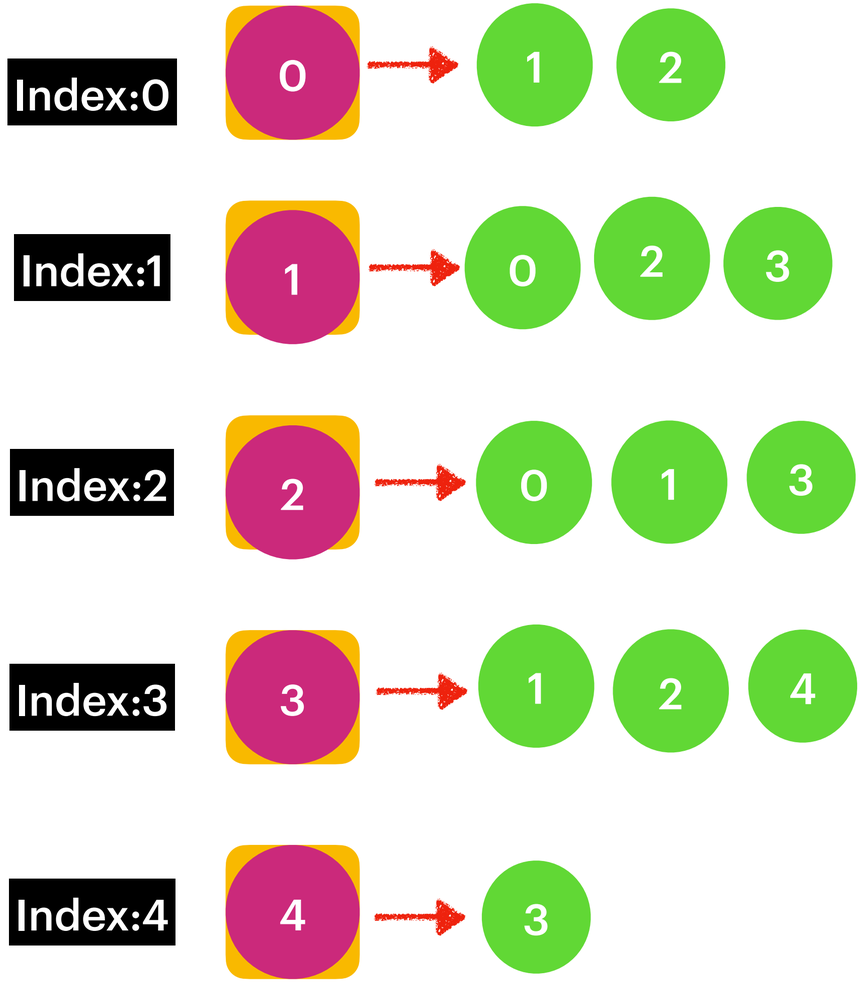
No.Of Vertices = 5, Vertex starts from 0. To n-1



Input : { {0,1} {0,2} , {1,3},{1,2},{2,3},{3,4}

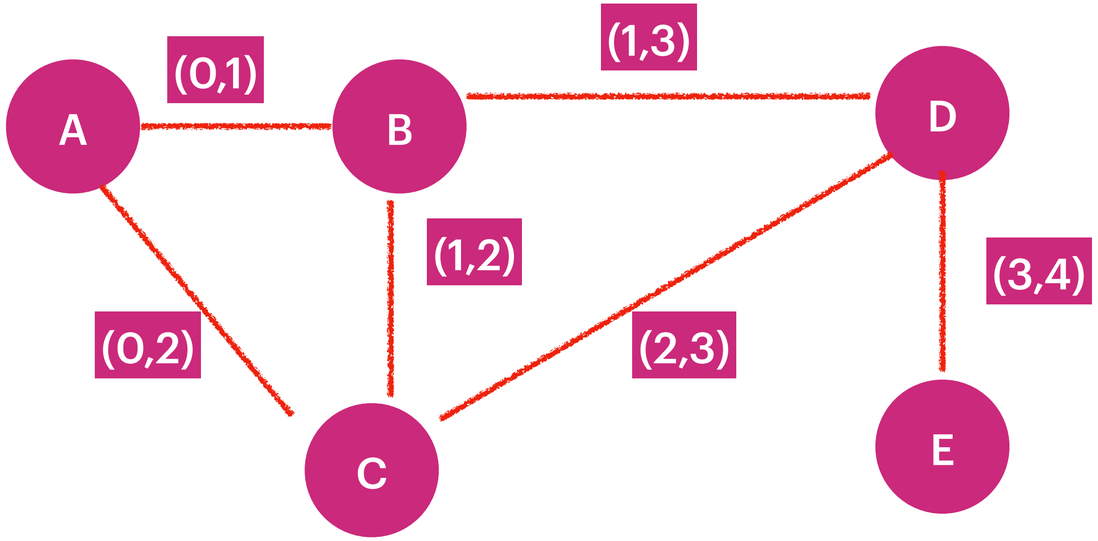
Graph with Adjacent List

List< List<Integer> >



Graph

No.Of Vertices = 5



Input : { {A,B}, {A,C} , {B,D},{B,C},{C,D},{D,E} }

Graph with Hashing

Map<Character, List<Character> >