3613. Minimize Maximum Component Cost

Solved

Medium Topics Hint

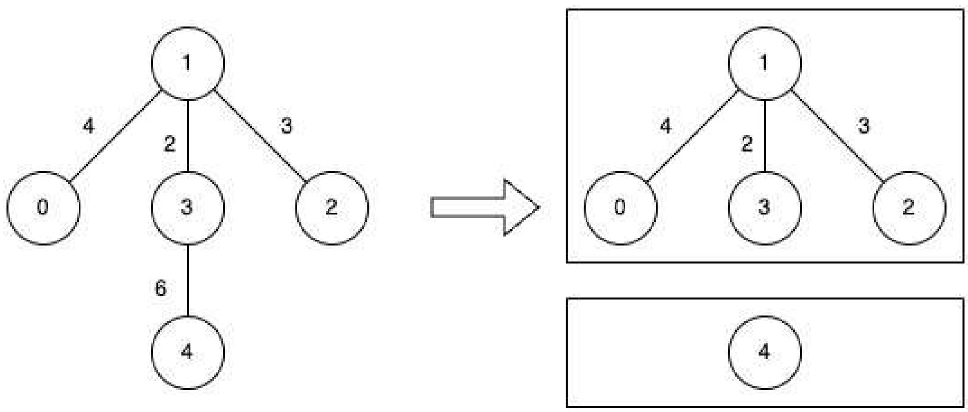
You are given an undirected connected graph with `n` nodes labeled from 0 to `n - 1` and a 2D integer array `edges` where `edges[i] = [u_i, v_i, w_i]` denotes an undirected edge between node `u_i` and node `v_i` with weight `w_i`, and an integer `k`.

You are allowed to remove any number of edges from the graph such that the resulting graph has **at most** `k` connected components.

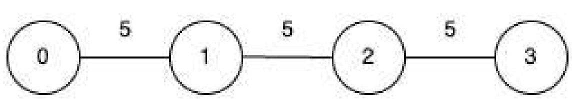
The **cost** of a component is defined as the **maximum** edge weight in that component. If a component has no edges, its cost is 0.

Return the **minimum** possible value of the **maximum** cost among all components **after such removals**.

Example 1:

> **Input:** n = 5, edges = [[0,1,4],[1,2,3],[1,3,2],[3,4,6]], k = 2
>
> **Output:** 4
>
> **Explanation:**
>
> 
>
>
> - Remove the edge between nodes 3 and 4 (weight 6).
> - The resulting components have costs of 0 and 4, so the overall maximum cost is 4.

Example 2:

> **Input:** n = 4, edges = [[0,1,5],[1,2,5],[2,3,5]], k = 1
>
> **Output:** 5
>
> **Explanation:**
>
> 
>
>
> - No edge can be removed, since allowing only one component (`k = 1`) requires the graph to stay fully connected.
> - That single component's cost equals its largest edge weight, which is 5.

Constraints:

- `1 <= n <= 5 * 10^4`

- `0 <= edges.length <= 10^5`
- `edges[i].length == 3`
- `0 <= u_i, v_i < n`
- `1 <= w_i <= 10^6`
- `1 <= k <= n`
- The input graph is connected.

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

Yes No

Accepted 18,207/42.4K | **Acceptance Rate** 42.9%

Topics

Hint 1

Hint 2

Discussion (26)