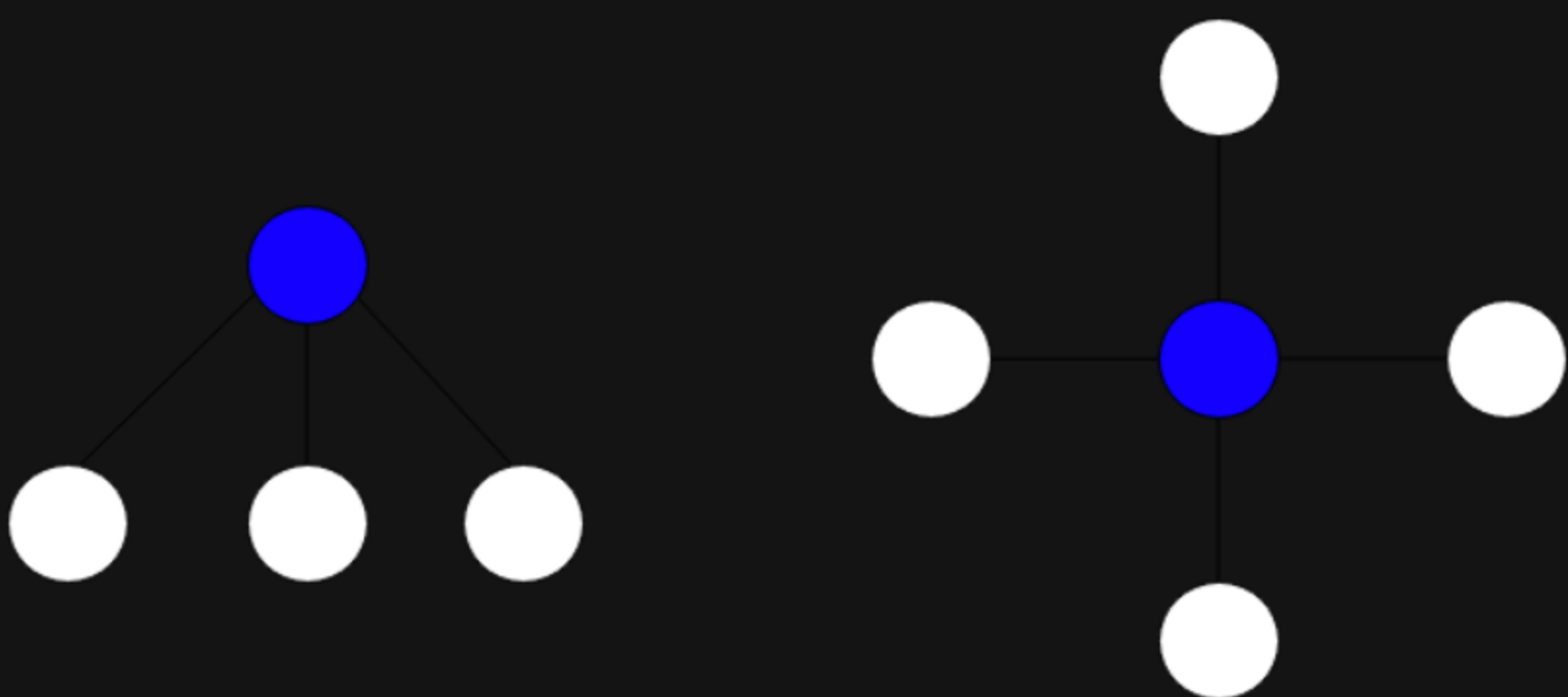# 2497. Maximum Star Sum of a Graph

Description

There is an undirected graph consisting of `n` nodes numbered from `0` to `n - 1`. You are given a **0-indexed** integer array `vals` of length `n` where `vals[i]` denotes the value of the `i`th node.

You are also given a 2D integer array `edges` where `edges[i] = [a_i, b_i]` denotes that there exists an **undirected** edge connecting nodes `a_i` and `b_i`.

A **star graph** is a subgraph of the given graph having a center node containing `0` or more neighbors. In other words, it is a subset of edges of the given graph such that there exists a common node for all edges.
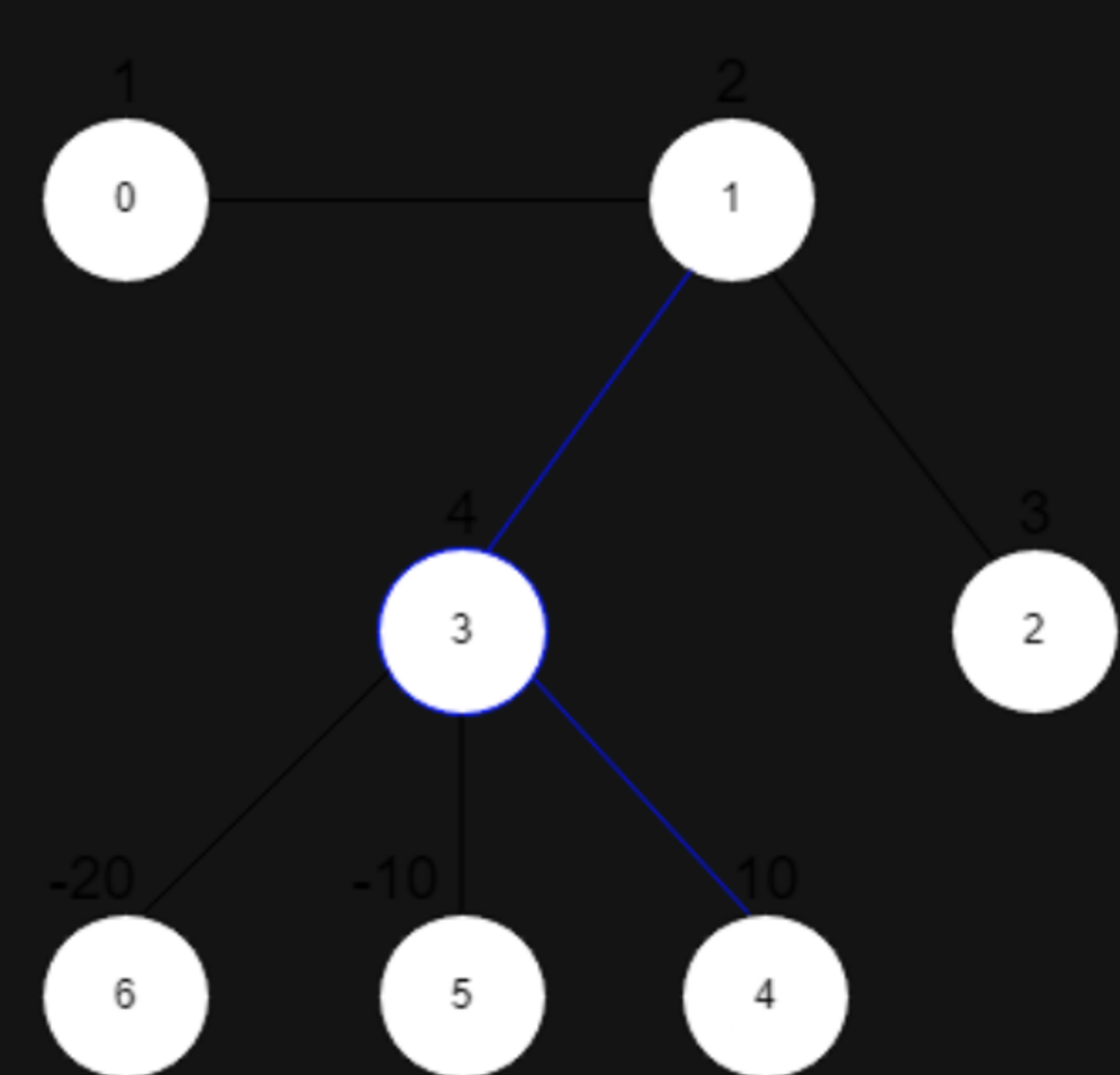
The image below shows star graphs with `3` and `4` neighbors respectively, centered at the blue node.

The **star sum** is the sum of the values of all the nodes present in the star graph.

Given an integer `k`, return *the **maximum star sum** of a star graph containing **at most** `k` edges.*

Example 1:


```
Input: vals = [1,2,3,4,10,-10,-20], edges = [[0,1],[1,2],[1,3],[3,4],[3,5],[3,6]], k = 2
Output: 16
Explanation: The above diagram represents the input graph.
The star graph with the maximum star sum is denoted by blue. It is centered at 3 and includes its neighbors 1 and 4.
It can be shown it is not possible to get a star graph with a sum greater than 16.
```

Example 2:

```
Input: vals = [-5], edges = [], k = 0
Output: -5
Explanation: There is only one possible star graph, which is node 0 itself.
Hence, we return -5.
```

Constraints:

- `n == vals.length`
- $1 <= n <= 10^5$
- $-10^4 <= vals[i] <= 10^4$
- $0 <= edges.length <= min(n * (n - 1) / 2, 10^5)$
- `edges[i].length == 2`
- $0 <= a_i, b_i <= n - 1$
- `a_i != b_i`
- `0 <= k <= n - 1`