

1615. Maximal Network Rank

There is an infrastructure of `n` cities with some number of `roads` connecting these cities.

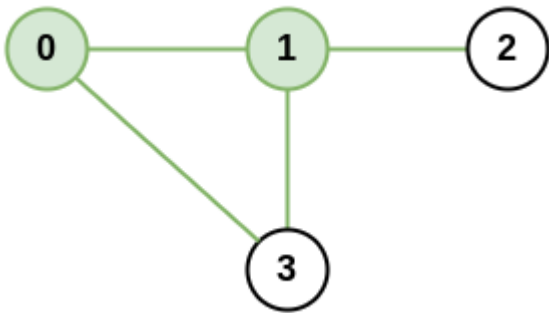
Each `roads[i] = [ai, bi]` indicates that there is a bidirectional road between cities `ai` and `bi`.

The network rank of two different cities is defined as the total number of directly connected roads to either city. If a road is directly connected to both cities, it is only counted once.

The maximal network rank of the infrastructure is the maximum network rank of all pairs of different cities.

Given the integer `n` and the array `roads`, return *the maximal network rank of the entire infrastructure*.

Example 1:

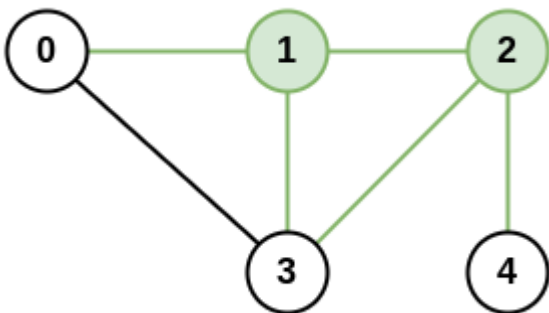


Input: `n = 4, roads = [[0,1],[0,3],[1,2],[1,3]]`

Output: 4

Explanation: The network rank of cities 0 and 1 is 4 as there are 4 roads that are connected to either 0 or 1. The road between 0 and 1 is only counted once.

Example 2:



Input: `n = 5, roads = [[0,1],[0,3],[1,2],[1,3],[2,3],[2,4]]`

Output: 5

Explanation: There are 5 roads that are connected to cities 1 or 2.

Example 3:

Input: n = 8, roads = [[0,1],[1,2],[2,3],[2,4],[5,6],[5,7]]

Output: 5

Explanation: The network rank of 2 and 5 is 5. Notice that all the cities do not have to be connected.

``````Python

import sys

class Solution:

def maximalNetworkRank(self, n: int, roads: List[List[int]]) -> int:

graph = defaultdict(set)

for u,v in roads:

graph[u].add(v)

graph[v].add(u)

maxNode = -sys.maxsize

for i in range(n):

for j in range(n):

if i!=j:

if j in graph[i]:

maxNode =

max(maxNode, len(graph[i])+len(graph[j])-1)

else:

maxNode = max(maxNode, len(graph[i])+len(graph[j]))

return maxNode