

Problem 1601: Maximum Number of Achievable Transfer Requests

Problem Information

Difficulty: Hard

Acceptance Rate: 64.51%

Paid Only: No

Tags: Array, Backtracking, Bit Manipulation, Enumeration

Problem Description

We have n buildings numbered from 0 to $n - 1$. Each building has a number of employees. It's transfer season, and some employees want to change the building they reside in.

You are given an array `requests` where `requests[i] = [fromi, toi]` represents an employee's request to transfer from building `fromi` to building `toi`.

All buildings are full, so a list of requests is achievable only if for each building, the **net change in employee transfers is zero**. This means the number of employees **leaving** is **equal** to the number of employees **moving in**. For example if $n = 3$ and two employees are leaving building 0 , one is leaving building 1 , and one is leaving building 2 , there should be two employees moving to building 0 , one employee moving to building 1 , and one employee moving to building 2 .

Return the maximum number of achievable requests.

Example 1:



Input: $n = 5$, `requests = [[0,1],[1,0],[0,1],[1,2],[2,0],[3,4]]` **Output:** 5 **Explanation:** Let's see the requests: From building 0 we have employees x and y and both want to move to building 1. From building 1 we have employees a and b and they want to move to buildings 2 and 0 respectively. From building 2 we have employee z and they want to move to building 0. From building 3 we have employee c and they want to move to building 4. From building 4 we

don't have any requests. We can achieve the requests of users x and b by swapping their places. We can achieve the requests of users y, a and z by swapping the places in the 3 buildings.

Example 2.



Input: n = 3, requests = [[0,0],[1,2],[2,1]] **Output:** 3 **Explanation:** Let's see the requests: From building 0 we have employee x and they want to stay in the same building 0. From building 1 we have employee y and they want to move to building 2. From building 2 we have employee z and they want to move to building 1. We can achieve all the requests.

Example 3.

Input: n = 4, requests = [[0,3],[3,1],[1,2],[2,0]] **Output:** 4

Constraints:

1 ≤ n ≤ 20, 1 ≤ requests.length ≤ 16, requests[i].length == 2, 0 ≤ fromi, toi < n

Code Snippets

C++:

```
class Solution {
public:
    int maximumRequests(int n, vector<vector<int>>& requests) {

    }
};
```

Java:

```
class Solution {
    public int maximumRequests(int n, int[][] requests) {

    }
}
```

Python3:

```
class Solution:
    def maximumRequests(self, n: int, requests: List[List[int]]) -> int:
```