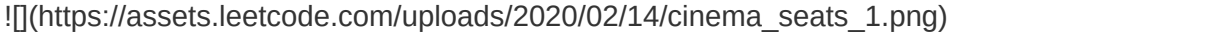
Problem 1386: Cinema Seat Allocation

Problem Information

Difficulty: Medium
Acceptance Rate: 43.28%
Paid Only: No
Tags: Array, Hash Table, Greedy, Bit Manipulation

Problem Description

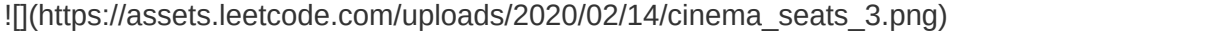


A cinema has `n` rows of seats, numbered from 1 to `n` and there are ten seats in each row, labelled from 1 to 10 as shown in the figure above.

Given the array `reservedSeats` containing the numbers of seats already reserved, for example, `reservedSeats[i] = [3,8]` means the seat located in row **3** and labelled with **8** is already reserved.

Return the maximum number of four-person groups you can assign on the cinema seats. A four-person group occupies four adjacent seats **in one single row**. Seats across an aisle (such as [3,3] and [3,4]) are not considered to be adjacent, but there is an exceptional case on which an aisle split a four- person group, in that case, the aisle split a four-person group in the middle, which means to have two people on each side.

Example 1:



Input: n = 3, reservedSeats = [[1,2],[1,3],[1,8],[2,6],[3,1],[3,10]] **Output:** 4
Explanation: The figure above shows the optimal allocation for four groups, where seats mark with blue are already reserved and contiguous seats mark with orange are for one group.

Example 2:

Input: n = 2, reservedSeats = [[2,1],[1,8],[2,6]] **Output:** 2

Example 3:

Input: n = 4, reservedSeats = [[4,3],[1,4],[4,6],[1,7]] **Output:** 4

Constraints:

* `1 <= n <= 10^9` * `1 <= reservedSeats.length <= min(10*n, 10^4)` * `reservedSeats[i].length == 2` * `1 <= reservedSeats[i][0] <= n` * `1 <= reservedSeats[i][1] <= 10` * All `reservedSeats[i]` are distinct.

Code Snippets

C++:

```
class Solution {
public:
int maxNumberOfFamilies(int n, vector<vector<int>>& reservedSeats) {

}
};
```

Java:

```
class Solution {
public int maxNumberOfFamilies(int n, int[][] reservedSeats) {

}
}
```

Python3:

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