Problem 3160: Find the Number of Distinct Colors Among the Balls

Problem Information

Difficulty: Medium
Acceptance Rate: 54.19%
Paid Only: No
Tags: Array, Hash Table, Simulation

Problem Description

You are given an integer `limit` and a 2D array `queries` of size `n x 2`.

There are `limit + 1` balls with **distinct** labels in the range `[0, limit]`. Initially, all balls are uncolored. For every query in `queries` that is of the form `[x, y]`, you mark ball `x` with the color `y`. After each query, you need to find the number of colors among the balls.

Return an array `result` of length `n`, where `result[i]` denotes the number of colors _after_ `ith` query.

Note that when answering a query, lack of a color _will not_ be considered as a color.

Example 1:

Input: limit = 4, queries = [[1,4],[2,5],[1,3],[3,4]]

Output: [1,2,2,3]

Explanation:

* After query 0, ball 1 has color 4. * After query 1, ball 1 has color 4, and ball 2 has color 5. * After query 2, ball 1 has color 3, and ball 2 has color 5. * After query 3, ball 1 has color 3, ball 2 has color 5, and ball 3 has color 4.

Example 2:

Input: limit = 4, queries = [[0,1],[1,2],[2,2],[3,4],[4,5]]

Output: [1,2,2,3,4]

Explanation:

* After query 0, ball 0 has color 1. * After query 1, ball 0 has color 1, and ball 1 has color 2. * After query 2, ball 0 has color 1, and balls 1 and 2 have color 2. * After query 3, ball 0 has color 1, balls 1 and 2 have color 2, and ball 3 has color 4. * After query 4, ball 0 has color 1, balls 1 and 2 have color 2, ball 3 has color 4, and ball 4 has color 5.

Constraints:

* `1 <= limit <= 109` * `1 <= n == queries.length <= 105` * `queries[i].length == 2` * `0 <= queries[i][0] <= limit` * `1 <= queries[i][1] <= 109`

Code Snippets

C++:

```
class Solution {
public:
vector<int> queryResults(int limit, vector<vector<int>>& queries) {

}
};
```

Java:

```
class Solution {
public int[] queryResults(int limit, int[][] queries) {

}
}
```

Python3:

```
class Solution:
def queryResults(self, limit: int, queries: List[List[int]]) -> List[int]:
```