Problem 2782: Number of Unique Categories

Problem Information

Difficulty: Medium
Acceptance Rate: 83.33%
Paid Only: Yes
Tags: Union Find, Interactive, Counting

Problem Description

You are given an integer `n` and an object `categoryHandler` of class `CategoryHandler`.

There are `n `elements, numbered from `0` to `n - 1`. Each element has a category, and your task is to find the number of unique categories.

The class `CategoryHandler` contains the following function, which may help you:

* `boolean haveSameCategory(integer a, integer b)`: Returns `true` if `a` and `b` are in the same category and `false` otherwise. Also, if either `a` or `b` is not a valid number (i.e. it's greater than or equal to `n`or less than `0`), it returns `false`.

Return _the number of unique categories._

Example 1:

Input: n = 6, categoryHandler = [1,1,2,2,3,3] **Output:** 3 **Explanation:** There are 6 elements in this example. The first two elements belong to category 1, the second two belong to category 2, and the last two elements belong to category 3. So there are 3 unique categories.

Example 2:

Input: n = 5, categoryHandler = [1,2,3,4,5] **Output:** 5 **Explanation:** There are 5 elements in this example. Each element belongs to a unique category. So there are 5 unique categories.

Example 3:

Input: n = 3, categoryHandler = [1,1,1] **Output:** 1 **Explanation:** There are 3 elements in this example. All of them belong to one category. So there is only 1 unique category.

Constraints:

* `1 <= n <= 100`

Code Snippets

C++:

```
/**
* Definition for a category handler.
* class CategoryHandler {
* public:
* CategoryHandler(vector<int> categories);
* bool haveSameCategory(int a, int b);
* };
*/
class Solution {
public:
int numberOfCategories(int n, CategoryHandler* categoryHandler) {

}
};
```

Java:

```
/**
* Definition for a category handler.
* class CategoryHandler {
* public CategoryHandler(int[] categories);
* public boolean haveSameCategory(int a, int b);
* };
*/
class Solution {
public int numberOfCategories(int n, CategoryHandler categoryHandler) {

}
```

```
}
```

Python3:

```
# Definition for a category handler.
# class CategoryHandler:
# def haveSameCategory(self, a: int, b: int) -> bool:
# pass
class Solution:
def numberOfCategories(self, n: int, categoryHandler:
Optional['CategoryHandler']) -> int:
```