Keys and Rooms (Leetcode 841)

How can we identify the question is of graph?

List<List<Data type>> syntax

Question: n rooms 0 to n-1

array rooms rooms[i] set of keys you can obtain if you visited i.

return true if you can visit all the rooms, or false otherwise.

Approach: Recursively visiting each node of graph using DFS.

More than one room can contain keys of the same room, so to avoid multiple visits to the same room, we will store the answer.

Pseudocode:

→ Using boolean array to check Y/N.

→ if any of the element of boolean array is false, it will answer will be false.

→ Creating a private function dfs.

dfs(keysinRoom, room, rooms, visited)

→ dfs

- first room with zero index will be already visited so,
- enter into a room starting with 0th room
- collect keys from that room
- check if rooms for which we got the keys are already visited or not if not visit it using dfs.

Code:

```
public boolean canVisitAllRooms(List<List<Integer>> rooms) {
    boolean visited[] = new boolean [rooms.size()];
    dfs(rooms.get(0), 0, rooms, visited);

    for (int i=0; i<visited.length; i++){
        if (!visited[i]){ → if any of the rooms is not visited return false
            return false;
        }
    } return true; → final return statement.
}

private void dfs(List<Integer> KeysInRoom, int room, List<List<Integer>> rooms,
                 boolean[] visited){

    visited[room] = true; obviously the room that we are doing dfs on is already visited.
    for(Integer i: KeysInRoom){
        if(!visited[i]){
            dfs(rooms.get(i), i, rooms, visited);
        }
    }
}
```