

## Problem 4: Active Directory

In this problem, we search through the given group if we find the given user. If we cannot find it then we recursively search through all the subgroups inside the given group. While searching we keep a track of all the groups that are already visited and if we found a group that has been previously visited then we skip that group.

Time Complexity:

$O(n)$  – We traverse through all files and folders exactly once.

Space Complexity:

We don't consider the space of storing names of users and groups.

$O(d)$  –  $d$  is the number of directories, since we store the visited directories.