

***** Explanation_4*****

- This Problem takes in arguments user and group the and determines id the user is in that group or not. for e.g if the Group has a sub group the user in sub group is part of group but vice versa may not be true.

- This this algorithm checks if user is in the current group if yes it return true.
- If the group does not have any subgroup it returns false.
- if the Groups have sub groups the the algorithm recursively check the user list to find a match if match found it returns true else false.

Time Complexity:

for the worst case if the user is in on the lowest sub group assuming the depth of sub group is N and number of user is M $\rightarrow O(N \times M)$

Space complexity:

$O(G+U)$

where G is total number of groups and U is total number of users