CS 212 MA #3

For this micro assignment, you will implement a Disjoint Set class that we will use in future micro assignments. I've supplied a sample main() for testing, but you will need to modify it to meet the requirements of HackerRank.

Main.cpp

HackerRank will begin by suppling values to union, separated by a single space. For example, "A B" is telling your disjoint set to union the characters 'A' and 'B'. Continue to do this until you read a value of -1. After which, HackerRank will supply elements for find operations. Your program must output the Boolean result of these finds. For example, "A B" would output 1 because 'A' and 'B' are in the same set (as per the prior example). However, "A C" would return 0 because 'A' and 'C' are not in the same set.

DisjointSet.h

Inside of the supplied DisjointSet class, you must implement the following two functions:

union_with(T &first, T &second)

Performs a union-by-size on the supplied parameters. Remember that in order to perform a union, you must first ***find*** the roots of each set.

T *find(T &start)

Performs a find operation on the disjoint set. Note that your find algorithm must also include path compression: On a given find operation, have all elements that don't point to the root point to the root.

Grading

Your submission will be graded based on the following:

1. [50] Your solution builds, does not cause any runtime issues, and passes all test cases

Due Date

This assignment must be submitted through HackerRank and Canvas no later than midnight on Wednesday, March 29, 2017.