Project 2

Due August 25, 2018 at 11:59 PM

This project specification is subject to change at any time for clarification. For this project you will be working with a partner. You will be constructing a data structure (called CFriendGroups) that will keep track of groups of friends. Friendship for this this project are considered to be symmetric and transitive. The data structure will need to determine if the two people are in the same friend group or not, and to be able to find the minimum number of new friendships in order to make everyone part of the same friend group. As an additional complexity each person can only be listed a maximum of two times in the new friendships solution (we want to spread the new friendships around). As part of the project your implementation will be required to pass a minimal set of GoogleTest tests that will be provided. You are encouraged to add your own GoogleTests for testing any data structures that you will be building in order to implement the CFriendGroups data structure.

A working example can be found on the CSIF in /home/cjnitta/ecs60/proj2. Your program is expected to run in approximately the same amount of time as the provided example. Extra credit may be available for solutions that significantly outperform the provided baseline solution. The use of the C++ STL containers is limited, you may use the string, tuple, vector, and list containers. Your program may not have memory leaks and will be tested using valgrind.

You can run the example program with the command:

```
./proj2 friendfile.csv
```

Your solution does not need to exactly match that of the baseline, as there may be many equally valid solutions. A solution checker has also been provided that will compare not only the correctness, but also the speed. You can run the checker against your solution with the command:

```
./proj2 friendfile.csv | ./checkproj2 friendfile.csv
```

Several data files have been provided for testing. They can be found in the data directory of the given tgz as well as the /home/cjnitta/ecs60/proj2 directory on the CSIF.

You **must** submit the source file(s), a Makefile, and README.txt file, in a tgz archive. You can tar gzip a directory with the command:

```
tar -zcvf archive-name.tgz directory-name
```

You should avoid using existing source code as a primer that is currently available on the Internet. You **must** specify in your readme file any sources of code that you have viewed to help you complete this project. All class projects will be submitted to MOSS to determine if students have excessively collaborated. Excessive collaboration, or failure to list external code sources will result in the matter being referred to Student Judicial Affairs.