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Algorithm description:

First, the number of students is read, and then the prohibited cases which are stored in a matrix, two more arrays are created for the classrooms, the first one has 1 student, and the other is empty.

Each student goes through the first classroom, and it's associated with each element of the classroom, if a prohibited pair is found, the counter of prohibited pairs of that classroom increases by one for each prohibited pair, then the same happens with the second classroom; at the end, the students get assigned in the classroom with the smallest counter, if the counters of each classroom are equal, the student is assigned to the first classroom. The counter of each classroom resets for each student.

Data structures:

The number of students is an int that increases every loop
The two classrooms are saved as string lists
The prohibited pairs are stored in a list of strings, where at the location n are stored the prohibited pairs with that student that are < n, so for example, in the prohibited list at location 8 is stored string '3 5', so 8 3 and 8 5 are prohibited

Complexity:

The complexity is n + m, where $m \leq \frac{n!}{2(n-2)!}$
The worst possible case every pair is prohibited so m is the highest it can possibly be, n is split to the two classrooms and every student checks one prohibited list.

Greedy:

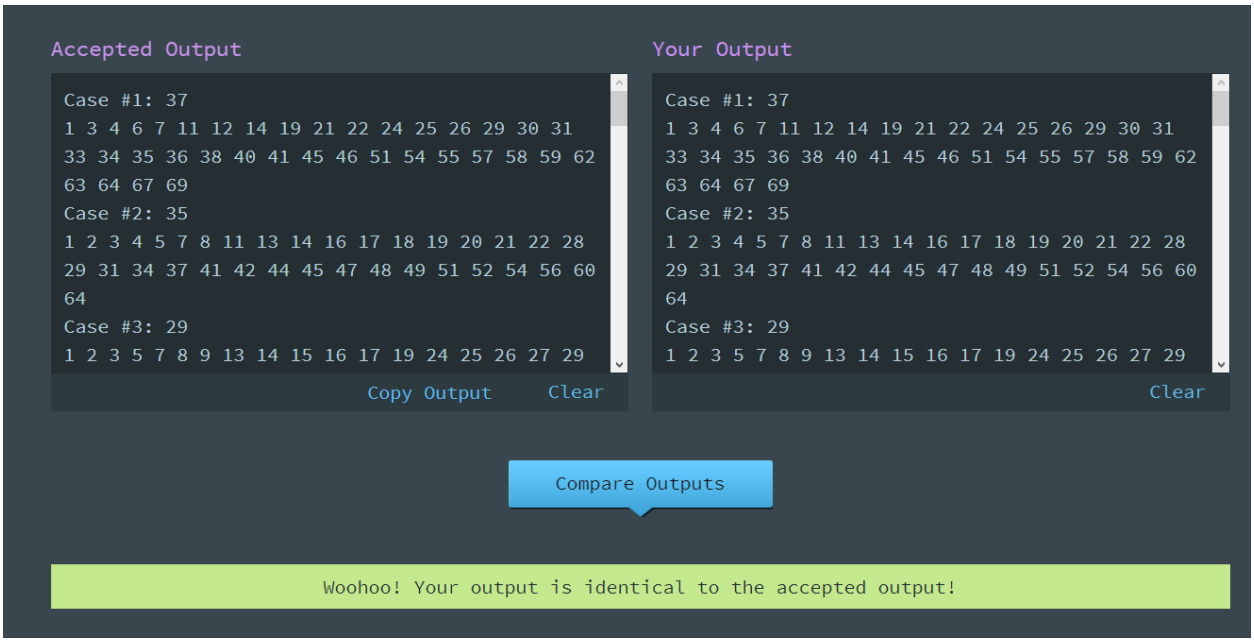
The algorithm is Greedy because it only cares about classifying the current student, it doesn't care if the classrooms are badly divided or if the total prohibited pairs is the lowest possible, only the local best choice for one student and it never rolls back a decision.

Once it compares the two classrooms it places that student in the class with the lowest conflicts for that student, and if both classrooms have an equal number of conflicts, the student is placed at the first classroom.

Submission in Online judge accepted – User: Payagas ID: 1271096

#	Problem	Verdict	Language	Run Time	Submission Date
27420064	10982 Troublemakers	Accepted	PYTH3	0.020	2022-04-18 21:55:23

uDebug 100 cases by Batman compared to our output (output.txt)



Repository: https://github.com/pmayavi/Data-Structures-and-Algorithms.git