CSCI 270 Lecture 13: Proof Practice

There are n students and m CPs in CSCI 270. You are forming study groups of size 3, where each group either has 2 students and 1 CP, or 2 CPs and 1 student. Find a greedy algorithm that forms the maximum possible number of study groups.

The Algorithm:
If there are more students remaining than CPs, the next group formed should be of 2 students and 1 CP. Otherwise, form a group of 2 CPs and 1 student.

The Rules:

- Form groups of 2-3 people.

- Prove the correctness of the above algorithm. Your group should write a single solution on a piece of paper. You do not need to write your names. Feel free to ask questions of the instructor.

- When time is up, you will pass your paper to the group specified by the instructor.

- The instructor will now go over a correct proof.

- Read the proof you have been given. Write any comments you like. Put a grade on the top of the paper between 0 and 10 (10 is a perfect proof). Try to consider beyond whether the proof matches the instructor's proof, and instead consider whether the given proof is a valid and rigorous proof.

- Continue to pass each paper you grade to the same group, and continue to grade each paper you receive, writing your grade and comments next to the ones already given by the previous groups.

- If you spend less than a couple minutes grading a paper, you're doing it wrong: take as much time as you need. If you are currently grading one paper, and have at least 2 papers waiting in your queue, dequeue the extra papers and pass them to the next group.

- If you receive your own paper, you can leave after grading any other papers you've already received.

- The purpose of this exercise is to read and grade proofs, and to gain a better appreciation of what constitutes an effective proof. The grades you receive on your paper are of little consequence (you may find that you completely disagree with some of the comments and grades you receive: this is to be expected).