**CS 232: DATA STRUCTURE – FINAL PROJECT**

**QUESTIONS FOR C LEVEL**

By Kieu My Vo

1. **Describe (in detail, please) your approach to fixing the code. What did you change, what did you leave, and how did you test it?** The original code has some issues, so I have made several changes to the original code, including:

* Defining a function make\_groups()
* Make a copy of the original list of names to avoid modifying the original list of names. This is because if we modify the original list directly, we could potentially lose some names or assign the same name to multiple groups.
* Using a while loop to group the names into groups of sizes between the minimum and maximum size.
* Handling the case where there are fewer names remaining than the minimum group size by adding the remaining names to existing groups
* Returning the list of groups from the function instead of printing it

What I left:

* The initialization of an empty list to store the groups.
* The loop to iterate over the groups and print them.

How did I test it?

* Test the function with the original list of names and verify that the output consists of groups with sizes between 2 and 4 people and that all names are included in a group exactly once.
* Test the function with a list of names of different lengths
* I will divide this problem into 3 cases:
* Case1: len(names) > max\_size: randomly choose
* Case2: min\_size < len(names) < max\_size: directly append to the group
* Case3: len(names) < min\_size: This happens when the remaining names in the "names" list are less than the minimum size, I will check for groups starting with index 0, if any group has space left over, the remaining names will be added to that group.
* Last and surest way, i test it on gradescope and fix the errors that the system returns

1. **What is the Big O for this function? How do you know?** The time complexity of this function is O(n), where n is the total number of names in the input list. This is because making a copy of the list would be O(n) because it has to go through all the elements in the list.