**CS 3450 Data Structures -**

**Midterm Assignment**

Spring 2023 Semester

Date of Assignment: 3/1/2023

Deadline: 3/8/2023 by Midnight

Total points: 150 points

Instructor: Patrik Boloz, M.S.

Create these Python functions and/or classes. Each function/class that is correctly created and tested is worth 50 points. Please include screenshots of your code and output in this document and submit it along with your Python code.

1) Create a function called list\_square that given a list of numbers will turn every item of a list into its square. For example: a\_list = [1,2,3,4,5,6] will be output\_list = [1,4,9,16,25,36]

HINT: Use a for loop to iterate through the list.

2) Create a function called list\_item\_erase, that by taking the user's input will create a list of user numbers. Then the function will ask the user for a number, which will be deleted with ALL its occurrences from the list. Print out how many numbers have been deleted from the list.

3) Create a class called Calculator, that will have two arguments in \_\_init\_\_() called: num1, num2. Then create two attributes self.num1 and self.num2 that will be used throughout the Calculator class. Create 4 methods called class\_red, class\_div, class\_add, class\_mult to do reduction, division, addition, and multiplication, respectively. Then test it out on the two numbers.

Make sure you use doctrings (“”” Description of your function/class “””) for all functions/classes.