MEDGAR EVERS COLLEGE
The City University of New York

Programming Project A

Directions:

You will create a three dimensional vector calculator program that allows the user to do either addition, subtraction, dot product or cross product where a three dimensional vector is an ordered triplet of the form $< a, b, c >$ where a, b and c are real numbers. The guidelines for your program are:

- ☐ It must consist of at least five functions excluding the main function.
- ☐ There should be a function for each operation. Each of these functions should handle checking the validity of its operands that must be parameters of the function, perform their given operation and simplify their result. They must not perform any form of I/O. However, the functions can have additional parameters; but, you will be responsible for deciding the return types of these functions, which do not have to be the same.
- ☐ There must be a calculator function that takes no parameters that is responsible for displaying a menu of the operations to the user, receiving the choice of the user, calling the appropriate function to perform the chosen operation, and displaying the result of the operation in the format

  $$<a\,,b\,,c>$$

  where a,b and c are displayed with one decimal point. Furthermore, if the user selects an invalid option display the message `"Invalid Operation"`.
- ☐ The program should only perform at most one operation per run.
- ☐ The main function should only call the calculator function.
- ☐ The program cannot use loops.
- ☐ The program can only include the libraries iostream, string, and iomanip.

Grading Rubic:

Your grade will be based on the following rubric:

Final Project Grading Rubric

Category	Task	Points
Specification	○ Program compiles. ○ Program performs required tasks. ○ Program produces accurate and formatted outputs.	10
Readability	○ Program uses meanful identifiers. ○ Program indents scopes.	5
Documentation	○ Program provides a header. ○ Program provides descriptions for functions.	5
		20