

**C++ Programming
Assignment #2
Prof. Blessing**

const & default parameters

Date: Tuesday, January 5, 1999

Due: Tuesday, January 12, 1999

Starting with the complex class defined from the previous weeks, add constructors, multiplication and division member functions to your classes' capabilities. Also, provide a `read()` and `write()` function to perform simple I/O of complex numbers. As an exercise in using some of the new features of C++, try placing `const` everywhere you possibly can in your declarations to promote safe use of your class by the user. Also, use default arguments for the places which benefit from them in your member function declarations. If you wish to work ahead, investigate overloading operators which make sense for the complex class (i.e. `+`, `-`, `*`, `/`, `<<`, `>>`, `==`, `!=`, `>`, `>+`, `<`, `<=`).

The definition of the complex operators are as follows:

Complex Addition:

$$(a+bi) + (c+di) = (a+c) + (b+d)i$$

Complex Subtraction:

$$(a+bi) - (c+di) = (a-c) + (b-d)i$$

Complex Multiplication:

$$(a+bi) * (c+di) = (a*c-b*d) + (a*d+b*c)i$$

Complex Division:

$$(a+bi) / (c+di) = (a*c+b*d)/(c*c+d*d) + ((b*c-a*d)/(c*c+d*d))i$$

Make sure that you thoroughly test your operators and provide adequate output to demonstrate the functionality of your program.

Reading: Corresponding material on `const`, default parameter values.