

## Advanced Computer Programming - 159.732

### Assignment 1

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This assignment required for a correct implementation of a complex number library, by any appropriate method. It is required that the program is able to work correctly with different data types that have been assigned, such as floats or doubles.

This program works by firstly deciding what data type is appropriate to be used and then promoting the other input to that type if required. It is able to do this by a method found at <http://www.devmaster.net/forums/showthread.php?t=12199>, which compares the size of each given data type and will return the most appropriate type for working with.

The program then works by using overloaded operators which have been repurposed for use with complex numbers, for example the + symbol will now add the real part and the imaginary part of the number together then return the resulting complex number.

An error with this implementation is the lack of precision with some complex number arithmetic, as the current code does not use robust formulas such as those shown in <http://www.massey.ac.nz/~kahawick/cstn/048/cstn-048.pdf>. As such errors could be caused when working with some complex numbers, such as over flow which in turn would cause a lack of precision