NYUAD Computer Systems Programming PROJECT #4 (Optional)

Project Deadline: One Day Prior to Final Exam

Design a C++ class to represent complex numbers. The complex class should have a real value and an imaginary value. The complex class should use functions to process the complex number such as: setComplex, getReal, getImag, isReal, isImag. The class should have a function print which will display the number in a different format depending on the presence of imaginary part. Operators + and * have to be overloaded to deal with complex numbers.

Complex Numbers Class

Class Name: CNum

Class Functions: setComplex, getReal, getImag, isReal, isImag, print, +, *.

Function	**Description**
setComplex	Asks user to input a complex number. First – real part, then imaginary part. Check user's input validity, obviously inputs have to be numbers.
getReal	Returns only the real part of the number.
getImag	Returns only the imaginary part of the number.
isReal	Returns 1 if the number is real, returns 0 otherwise
isImag	Returns 1 if the number is imaginary, returns 0 otherwise
print	Displays the number. If the number is imaginary it is printed in the following format: "x+yi". If the number is real, the following format is used: "x". Where: x –real part and y – imaginary part.
Operators	**Description**
+	Adds two imaginary numbers according to the standard mathematical rules.
*	Multiplies two imaginary numbers according to the standard mathematical rules.

Write a program that implements this class and tests it.