**ENGR 102**

**Lab # 4B [100 Points]**

You are to write the following programs, each of which should be done individually. However, you may talk with others in lab about how to go about doing each of them.

**Program 1: [30 Points]**

Write a program that asks a user for 3 numbers and the using conditional statements (i.e. statements like if-elif-else), reports what the largest of those 3 numbers is.

**Program 2: [70 Points]**

A quadratic equation is an equation of the form Ax2+Bx+C. A, B, and C are the coefficients of the equation, and the roots are the values of x at which the equation evaluates to 0, and the well-known quadratic formula is often used to find these roots.

Write a program that asks a user for the 3 coefficients and outputs the roots of that equation. Be aware of the following:

* Be sure that your request for input and your output both have descriptive text.
* If the roots have an imaginary component, use when representing the imaginary term in the output. For example, you may output “” as a root. (Remember data types and string concatenation)
* Be sure to handle the cases in which any or all coefficients are equal to zero.
  + If A != 0, there could be 2 real distinct roots, 2 real identical roots (one root of multiplicity 2), or complex roots.
  + If A = 0, we are left with , a linear equation with one root.
  + If A = B = 0, we are left with C = 0, so if user entered a non-zero value of C, write a message to the screen indicating this error.

Zip both programs and upload to eCampus