Programming and Data Structures Lab (CS2710)
Assignment-01: *Programming Basics*

Lab-work:

1. Implement Complex Number and their Operations
   For complex number representation (p + q.i), first define a structure which has two floating point variables, one to keep the real part (p) and the other to keep the imaginary part (q).
   Perform the following operations (write separate functions for these operations):
   (a) Addition of two complex numbers,
   (b) Subtraction of two complex numbers,
   (c) Multiplication of two complex numbers,
   (d) Division of two complex numbers,
   (e) Modulus / Magnitude / Absolute value of two complex numbers
   The program will present a menu of the above operations (having option numbers) and prompt user to enter a choice. The users will select any operation to perform (by entering the appropriate option number mentioned in the menu). After completion of an operation, the program will again go back showing this menu.
   In this menu, keep an OPTION 0 (zero) indicating EXIT PROGRAM which will mark the exit/termination from this program, if users enter 0 during their choice.

2. Determine the Maximum and the Minimum from a Set of Integers
   Inputs: A set of Integers
   Outputs: The Maximum and the Minimum from the given set of Integers

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Home-work:

1. Find the Square Root of an Integer
   Inputs: An Integer
   Outputs: The Square Root Value for that Integer

2. Determine the Maximum and the Next-Maximum from a Set of Integers
   Inputs: A set of Integers
   Outputs: The Maximum and the Next-Maximum from the given set of Integers

3. Convert a given Integer into equivalent word
   Inputs: An Integer (take sufficiently long input integer in the form of a string)
   Outputs: The corresponding word for that integer
   Example: Input = 10923 => Output => Ten Thousand Nine Hundred Twenty Three

4. Determine Common Prime Factors between two Integers
   Inputs: Two Integers
   Outputs: The Set of Common Prime Factors for those Integers
   Example: Input => 12, 30 Output => 2, 3