ASSIGNMENT 02

REQUIREMENTS

- Use functions to: read a complex number from the console, write a complex number to the console, implement each required functionality.
- Functions communicate using input parameter(s) and the return statement (**DO NOT** use global variables)
- Each complex number should be represented as a list or tuple (e.g. 1-2i as [1, -2]). To access or modify numbers, use getters and setters.
- Provide the user with a menu-driven console-based user interface. Input data should be read from the console and the results printed to the console.

PROBLEM STATEMENT

Implement a menu-driven console application that provides the following functionalities:

1. Read a list of complex numbers (in $z = a + bi$ form) from the console.
2. Display the entire list of numbers on the console.
3. Display on the console the longest sequence that observes a given property. Each student will receive 2 of the properties from the list provided below.
4. Exit the application.

The source code will include:

a. Specifications for the functions related to point 3 above.
b. 10 suitable complex numbers already available at program startup.

Sequence Properties

The sequence (consists of):

1. Numbers with a strictly increasing real part.
2. Contains at most 3 distinct values.
3. Numbers having the same modulus.
4. Numbers having increasing modulus.
5. Real numbers.
6. Distinct numbers.
7. The difference between the modulus of consecutive numbers is a prime number.
8. The modulus of all elements is in the [0, 10] range.
9. Consecutive number pairs have equal sum. (**e.g.** 1+3i, 1-i, 1+3i, 1-i)
10. Sum of its elements is 10+10i
11. Real part is in the form of a mountain (first the values increase, then they decrease). (**e.g.** 1-i, 2+6i, 4-67i, 90+3i, 80-7i, 76+i, 43-12i, 3)
12. Both real and imaginary parts can be written using the same base 10 digits (**e.g.** 1+3i, 31i, 33+i, 111, 11-313i)