ASSIGNMENT 02

OBJECTIVES

- Learn how to write correctly-specified functions
- Learn how to divide functionalities into functions
- Implement a simple menu-driven user interface
- Learn to use lists and tuples

REQUIREMENTS

- Use simple feature-driven software development process.
- The program must provide a menu-driven user interface
- Use Python's built-in compound types to represent data in the problem domain.

PROBLEM STATEMENT

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

1. Read a list of integers from the keyboard.
2. Print the entire list of numbers.
3. Print to 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 application will have a documentation that contains:

- Running scenarios for the requirements at point 3 above.
- Test cases for the requirements at point 3 in the form of a table.

SEQUENCE PROPERTIES

The sequence consists of:

1. Strictly increasing numbers.
2. Contains at most 3 distinct values.
3. All consecutive number pairs have the greatest common divisor 1.
4. Contains only prime numbers.
5. A single number.
6. Distinct numbers.
7. The difference between the absolute value of consecutive numbers is a prime number. (**e.g.** 1 3 10 21)
8. All elements are in the [0, 10] range.
9. Differences between consecutive number pairs have different signs. (**e.g.** 1 3 2 10 5)
10. Consecutive numbers have different signs. (**e.g.** 1 -2 3 -5 10 -99)
11. Sum of its elements is 10
12. All consecutive number pairs have at least 2 common digits. (**e.g.** 12 2213 31 314 451)
13. Is in the form of a mountain (first the values increase, then they decrease). (**e.g.** 1 2 4 90 80 76 43 3)
14. Writing them in base 10 is done using the same digits.

    (**e.g.** 1 3 31 331 111 11313)