UNIVERSITY OF CALOOCAN CITY
COMPUTER ENGINEERING DEPARTMENT

Data Structure and Algorithm

Laboratory Activity No. 2

Algorithm Analysis and Flowchart

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I. Objectives

Introduction

Data structure is a systematic way of organizing and accessing data, and an algorithm is a step-by-step procedure for performing some task in a finite amount of time. These concepts are central to computing, but to be able to classify some data structures and algorithms as "good," we must have precise ways of analyzing them.

This laboratory activity aims to implement the principles and techniques in:

- Writing a well-structured procedure in programming
- Writing algorithm that best suits to solve computing problems to improve the efficiency of computers
- Convert algorithms into flowcharting symbols

$$\begin{cases} -x, & x<0 \\ x, & x \geq 0 \end{cases}$$

II. Methods

A. Explain algorithm and flowchart

B. Write algorithm to find the result of equation: $f(x) = \begin{cases} -x, & x<0 \\ x, & x \geq 0 \end{cases}$ and draw its flowchart

C. Write a short recursive Python function that finds the minimum and maximum values in a sequence without using any loops

III. Results

1.

An algorithm is a step-by-step process of a program to solve a problem and complete a task. A flowchart would be its visual representation, using different shapes for different types of processes.

2.

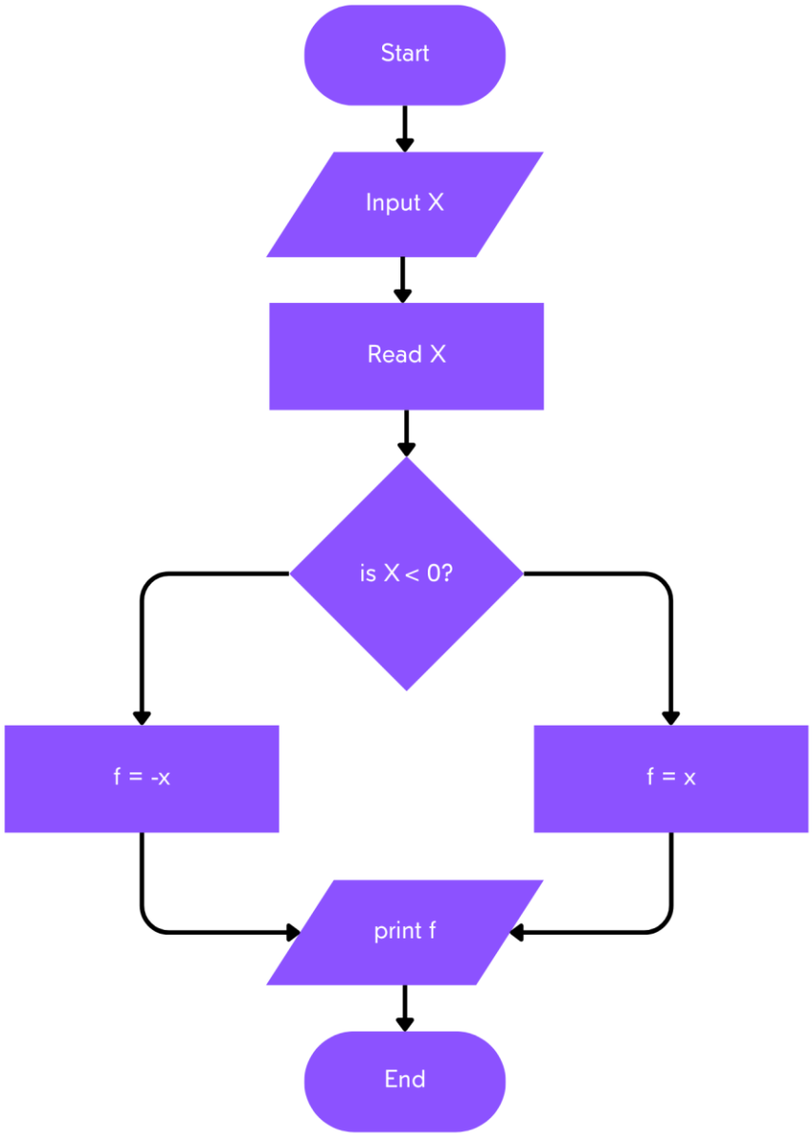

Figure 1: Screenshot of flowchart made in Canva

This flowchart shows the process of how a program asks you to enter an x variable. Then the program will check if the x is less than, equal to, or greater than 0 to print x or –x.

3.

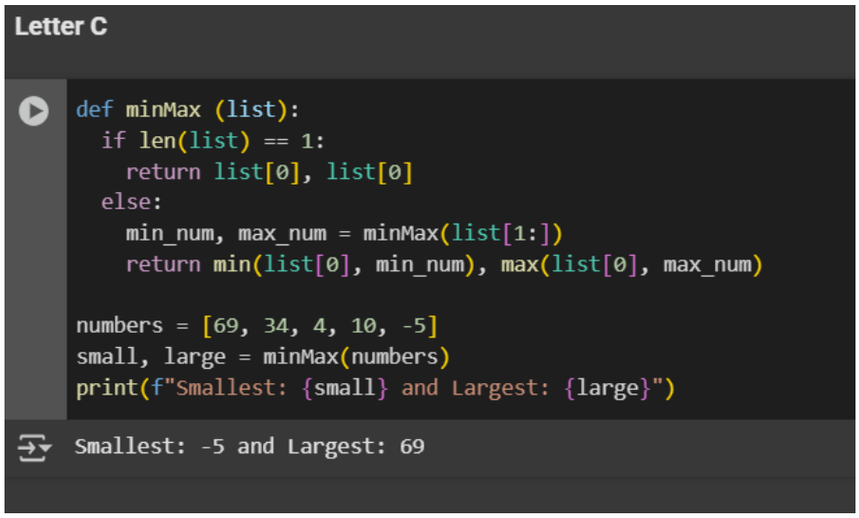

Figure 2: Screenshot of prgogram from google colab

The program shows how you can read a list and look for its min and max number using the function minMax, under that function are the functions min() and max() to look for the min and max value. This was done this way to avoid using loops.

IV. Conclusion

Because of this laboratory report, I can learn how to make flowcharts using the correct shapes in each type of process. I also learned how to be able to look for a certain variable type and requirement inside a list without using a loop.

References

[1] Co Arthur O.. “University of Caloocan City Computer Engineering Department Honor Code,” UCC-CpE Departmental Policies, 2020.