Data Structure and Algorithm

Laboratory Activity No. 3

Translating Algorithm to Program

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# 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 tasks 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 computing problems
* Writing an efficient Python program from translated algorithms

# Methods

• Design an algorithm and the corresponding flowchart (Note: You may use LucidChart or any application) for adding the test scores as given below if the number is even: 26,49,98,87,62,75

• Translate the algorithm to a Python program (using Google Colab)

• Save your source codes to GitHub

# Results

# **ALGORITHM**

1. Start  
2. Initialize sum to 0

3. Set the list of the test scores to: [26, 49, 98, 87, 62, 75]

4. Loop through each number in the list:   
 If the number is even (number % 2 == 0)

Add it to sum

5. After the loop, display the value of sum

6. End

**FLOWCHART**

**A diagram of a algorithm

AI-generated content may be incorrect.**

A screenshot of a math problem

AI-generated content may be incorrect.

# **Conclusion**

Through this lab exercise, I was able to review the use of flowcharts and algorithms for planning, especially when dealing with if-else expressions. I went back to the basics when I converted the algorithm and flowchart into Python code. For example, I used the modulo operator to go through a list, in this case scores, and determine whether each value is even or odd. To integrate text and variables in the output, I also practiced adding up all the even integers and used an f-string to display the total. All things considered, this exercise improved my fundamental abilities and served as a reminder of how crucial it is to understand flowcharts and algorithms to solve problems.

**References**

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