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 to solve 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

**(A.) ALGORITHM**

1. START
2. Initialize a variable named total\_sum to 0
3. Create an array named “scores” with this numbers: 26, 49, 98, 87, 62, 75.
4. Add a loop that iterates each number in the scores list.
5. Inside the loop, check if the current number is even. (ex. number % 2 == 0).
6. If the number is even, add the number to total\_sum
7. If the number is odd, do nothing and proceed to the next number in the list.
8. After the loop has finished checking all the numbers in the scores list, display the final value of total\_sum.
9. END

**(A.) FLOWCHART**

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**(B.) CODE SNIPPET**

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**RESULT**

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# Conclusion

The program implemented the designed algorithm to sum the even numbers from the given list of scores. By initializing a total\_sum variable through the list, the program can identify the even numbers (26, 98, and 62) and added them, resulting in the final sum of 186. This demonstrates.

**References**

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