UNIVERSITY OF CALOOCAN CITY
COMPUTER ENGINEERING DEPARTMENT

Data Structure and Algorithm

Laboratory Activity No. 3

Translating Algorithm to Program

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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 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

II. 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

III. Results

Algorithm

1. Start
2. Scores = 26,49,98,87,62,75 Sum = 0
3. For each number in Scores
4. If number % 2, then sum all number
5. Else discard number then proceed to next number
6. Print Sum
7. End

Flowchart

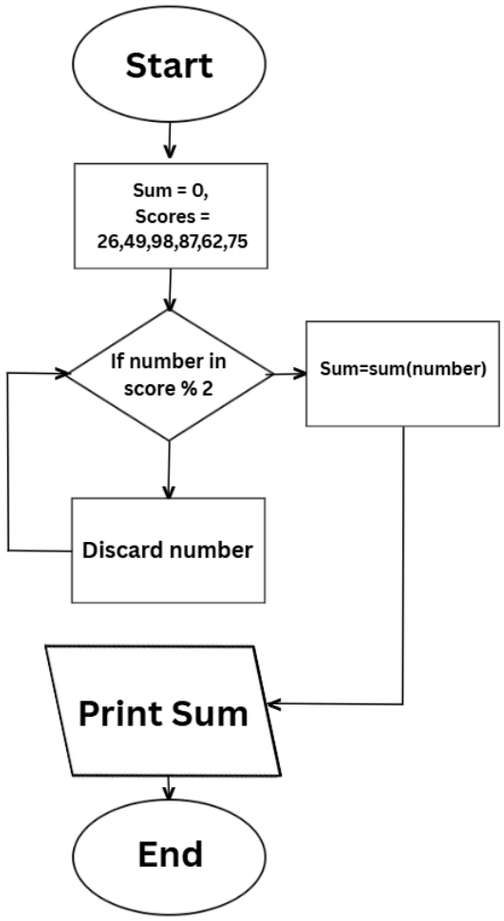

Figure 1 Flowchart

Python Program (in Colab)

```
scores = [26, 49, 98, 87, 62, 75]
sum = 0
for number in scores:
    if number % 2 == 0:
        sum += number
print("The sum of even scores:",sum)
```

```
The sum of even scores: 186
```

Figure 2 Screenshot of the program

The program above shows the summation of all even scores in an array using for loop. The program uses modules or % to find if a number in an array has a remainder, if the number has a remainder it discards the number then proceeds to next one, it then adds all the even scores then prints the summation of the even scores.

IV. Conclusion

This laboratory activity demonstrated the practical translation of an algorithm into a working Python program. By designing a clear and structured algorithm and visualizing it through a flowchart, the process of coding became more systematic and efficient. The program successfully filtered out odd numbers and computed the sum of even test scores using basic Python constructs such as loops and conditional statements.

References

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

[2] *Google Colab*. (n.d.-b). https://colab.research.google.com/drive/1z_XqUS8GOuP7VMoiLZTT49mvOWrj6coF#scrollTo=GYRkXijVs8iv

[3] Lewis-Clark-Palmes. (n.d.). *CPE-201L-DSA-2-A/LAB_3.ipynb at main · Lewis-Clark-Palmes/CPE-201L-DSA-2-A*. GitHub. https://github.com/Lewis-Clark-Palmes/CPE-201L-DSA-2-A/blob/main/LAB_3.ipynb