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. Input test_scores
3. If test_scores % 2 = 0, then find the sum
4. Output the sum

Flowchart

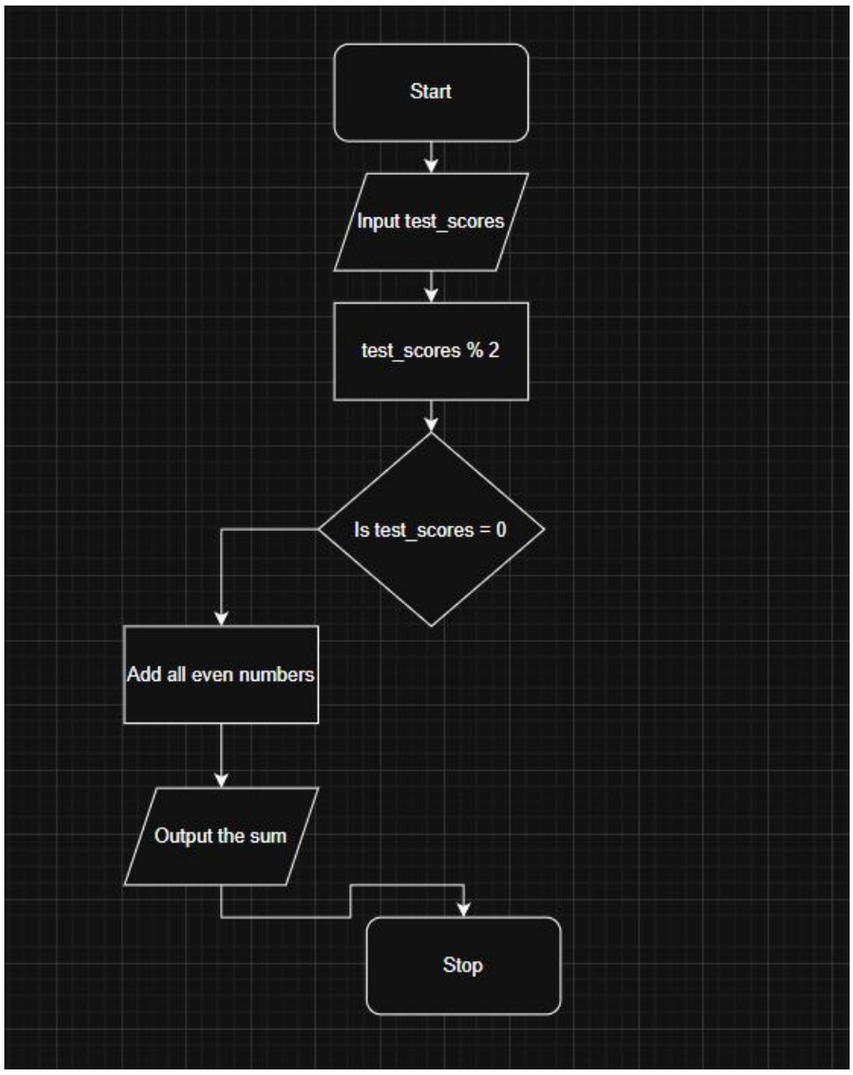

Figure 1. Flowchart

```
test_scores = [26, 49, 98, 87, 62, 75]
sum = 0

for scores in test_scores:
  if scores % 2 == 0:
    sum += scores

print(f"The sum of all even scores is {sum}.")
```

```
The sum of all even scores is 186.
```

Figure 2. Source Code

IV. Conclusion

This laboratory activity made me go back on how to use the algorithm for planning and the use of flowchart to visualize especially on if-else statements. On turning the algorithm and flowchart into python code. It made me go back to basics such as looping the list which this time is called test_scores and by checking if its even or odd by using the modulo operator if the output is 0 or any other numbers. I also incremented it to add all even numbers and printing the sum of all even numbers by using the f-string since i'm combining strings with the variable. Overall, this laboratory activity enhances my basics and to go back and master the use of algorithm and flowchart on solving a problem.

References

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