UNIVERSITY OF CALOOCAN CITY
COMPUTER ENGINEERING DEPARTMENT

Data Structure and Algorithm

Laboratory Activity No. 3

Translating Algorithm to Program

Submitted by:
Villacin, Justine R.

Instructor:
Engr. Maria Rizette H. Sayo

August 2, 2025

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 Lucid Chart 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

Present the visualized procedures done. Also present the results with corresponding data visualizations such as graphs, charts, tables, or image. Please provide insights, commentaries, or explanations regarding the data. If an explanation requires the support of literature such as academic journals, books, magazines, reports, or web articles please cite and reference them using the IEEE format.

Please take note of the styles on the style ribbon as these would serve as the style format of this laboratory report. The body style is Times New Roman size 12, line spacing: 1.5. Body text should be in Justified alignment, while captions should be center aligned. Images should be readable and include captions. Please refer to the sample below:

```
scores = [26, 49, 98, 87, 62, 75]
sum_of_evens = 0

for i in scores:
  if i % 2 == 0:
    sum_of_evens += i

print(f"The total value of even numbers: {sum_of_evens} ")
```

```
The total value of even numbers: 186
```

Figure 1 Screenshot of program

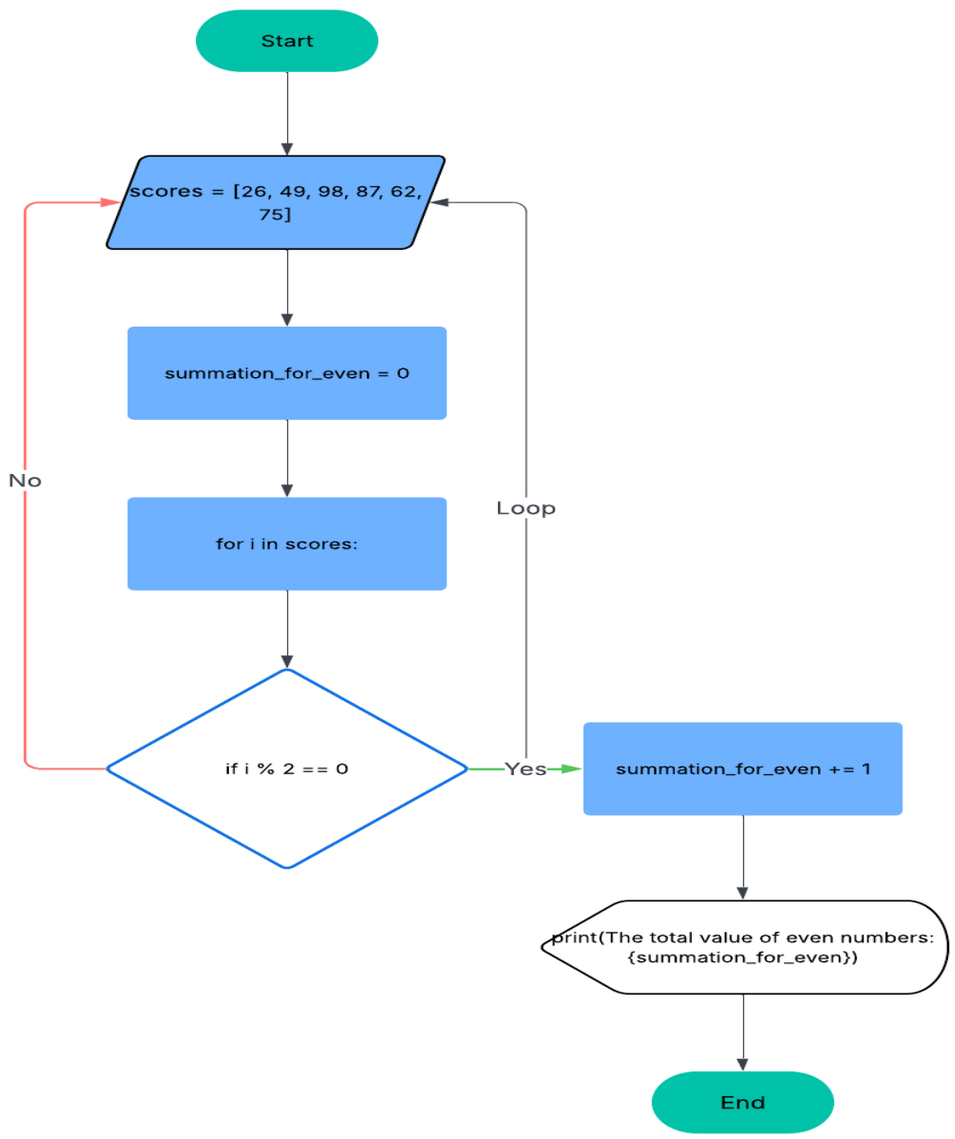

Figure 2 Flowchart

Algorithm

Step 1: Start

Step 2: Create a list number = [26, 49, 98, 87, 62, 75]

Step 3: Set sum_of_evens to zero

Step 4: Check if the number is even by using modulus by 2

Step 5: If no remainder, add the number to sum_of_evens (0)

Step 6: If has remainder, skip to the next index number

Step 7: Print the value of all even numbers inside the number list

Step 8: End

IV. Conclusion

This activity helped me practice turning an algorithm into a working Python program. By designing a flowchart and writing code to sum even numbers, I learned how to structure solutions logically and implement them efficiently. These skills are essential for solving real-world computing problems clearly and effectively.

References

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

[2] GeeksforGeeks, “What is a Flowchart and its Types?,” *GeeksforGeeks*, Apr. 07, 2025. https://www.geeksforgeeks.org/computer-science-fundamentals/what-is-a-flowchart-and-its-types/