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

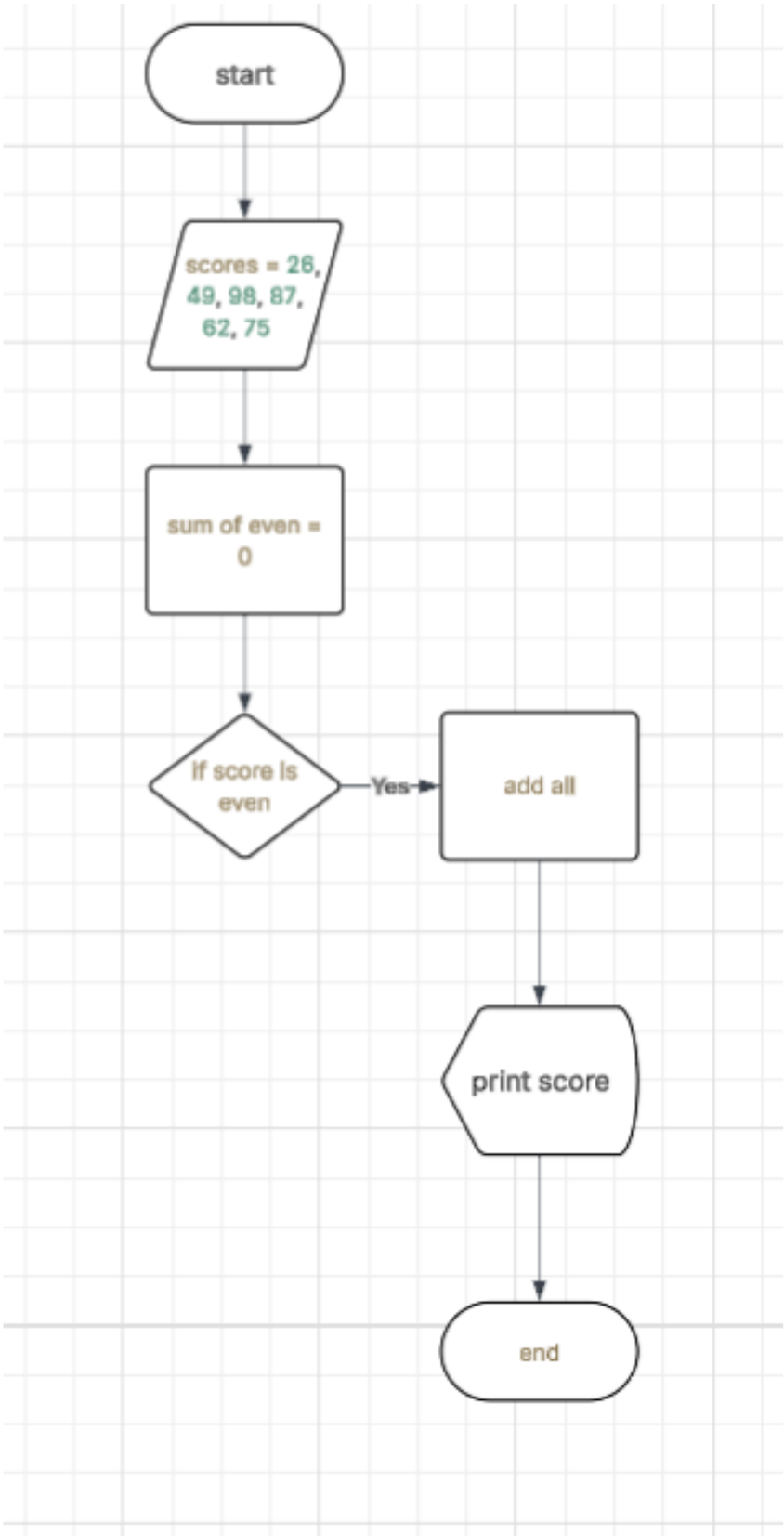
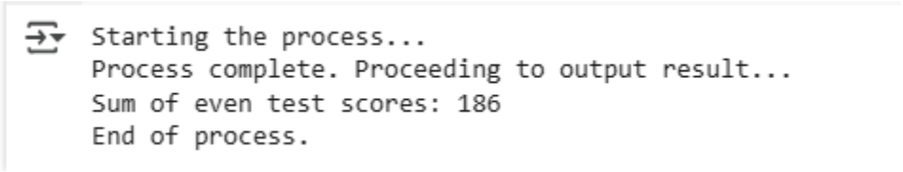

start
scores = 26, 49, 98, 87, 62, 75
sum of even = 0
If score is even
Yes
add all
print score
end

Figure 1 Screenshot of program

If an image is taken from another literature or intellectual property, please cite them accordingly in the caption. Always keep in mind the Honor Code [1] of our course to prevent failure due to academic dishonesty.



IV. Conclusion

In conclusion, this laboratory demonstrates the importance of having a clear and precise alignment between algorithms, flowcharts, and the corresponding code. When designing algorithms and flowcharts, accuracy and clarity are paramount to ensuring efficient and error-free execution of tasks. By aligning the logical steps in the algorithm with the visual flowchart, it becomes easier to visualize the process and identify potential bottlenecks or errors in the design.

In this case, the algorithm for summing even test scores was directly reflected in the flowchart, which then translated seamlessly into the Python code. This alignment led to an efficient solution with minimal complexity. Additionally, the process of implementing the algorithm in a Python program, testing it in Google Colab, and storing the code on GitHub highlighted the practical application of computational thinking.

References

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