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

A.

1. Start.

2. Initialize Data: Create a list of numbers: number_list = [26, 49, 98, 87, 62, 75].

3. Initialize Sum: Create a variable named sum and set its value to 0.

4. Iterate: Begin a loop that goes through each number in the number_list.

5. Check Condition: For the current number, check if it's even by calculating the remainder of the number divided by 2. Is number % 2==0?

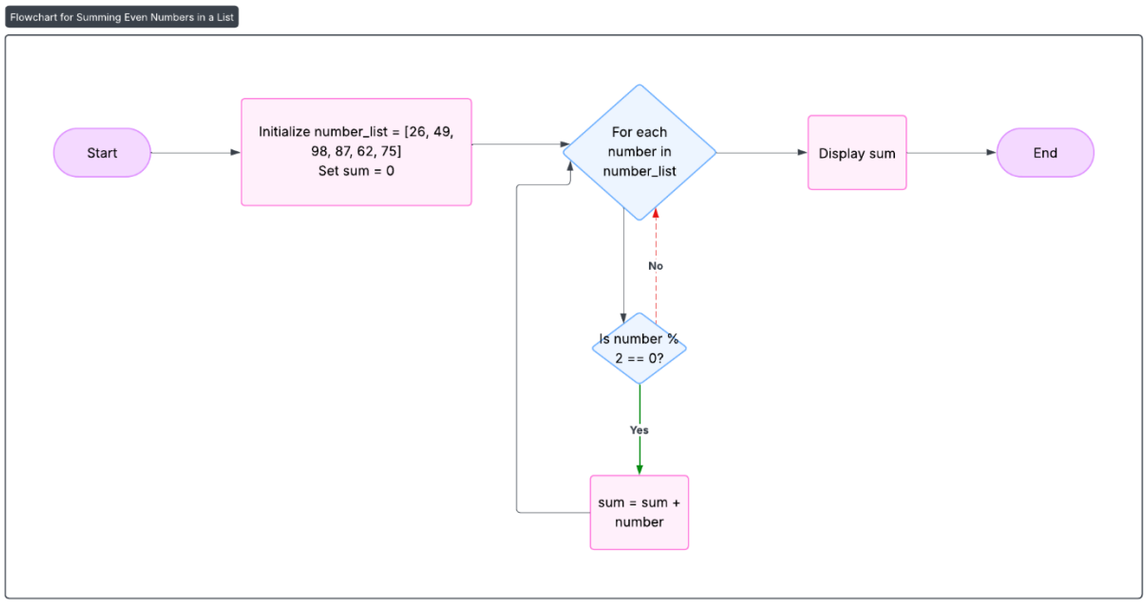
6. If Yes: Add the number to the sum.

7. If No: Continue to the next number in the list.

8. Continue Loop: If there are more numbers in the list, go back to step 5. Otherwise, proceed to the next step.

9. Output: Display the final value of sum.

10. End.



B.

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IV. Conclusion

The activity show algorithms that solve problems using conditional logic. The first example, illustrated with a flowchart and Python code, finds the sum of even numbers in a list by iterating through the items and applying a rule using modules operation.

Both examples demonstrate the core concept of an algorithm: a precise, step-by-step procedure that takes an input, applies logical rules, and produces a predictable output, forming a fundamental solution to the problem.

Algorithm

References

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