UNIVERSITY OF CALOOCAN CITY
COMPUTER ENGINEERING DEPARTMENT

Data Structure and Algorithm

Laboratory Activity No. 3

Translating Algorithm to Program

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08, 02, 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

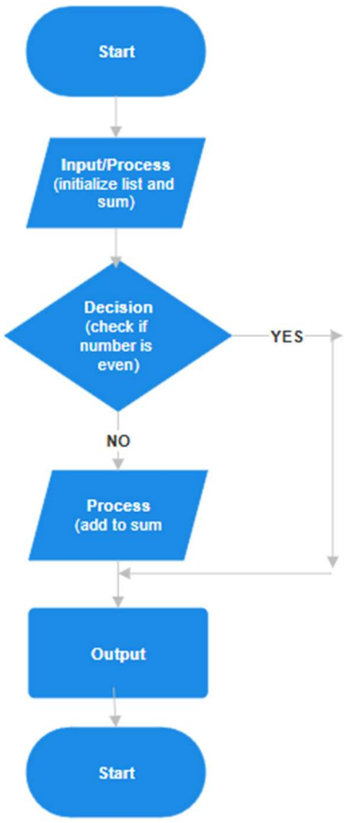
- Design an algorithm and the corresponding flowchart (Note: You may use LucidChart or any application) for adding the test scores as given below if the number is even: 26,49,98,87,62,75
- Translate the algorithm to a Python program (using Google Colab)
- Save your source codes to GitHub

III. Results

Algorithm:
Sum of Even Test Scores

1. Start
2. Initialize list of test scores: scores = [26, 49, 98, 87, 62, 75]
3. Initialize sum = 0
4. For each score in the list:
    If score is even:
        Add score to sum
5. Output the value of sum
6. End

Flowchart:



Source Code:

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

sum_even_scores = 0

for score in test_scores:
    if score % 2 == 0:
        sum_even_scores += score

print("Test scores:", test_scores)
print("Sum of even scores:", sum_even_scores)
```

```
Test scores: [26, 49, 98, 87, 62, 75]
Sum of even scores: 186
```

https://colab.research.google.com/drive/1cQdWxw3CTBmXk_EWoW4cqhmhgTPeKrxc#scrollTo=0RT0D2XJWUBC&line=4&uniqifier=1

IV. Conclusion

This laboratory activity gave me the opportunity to apply what I've learned about designing algorithms, creating flowcharts, and writing Python code. By solving the problem of summing only the even numbers from a list of test scores, I was able to strengthen my understanding of loops and conditional statements. It helped me see how planning through algorithms and flowcharts translates into actual working code, making the learning experience more practical and meaningful.

References

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