



UNIVERSITY OF CALOOCAN CITY  
COMPUTER ENGINEERING DEPARTMENT



Data Structure and Algorithm

Laboratory Activity No. 3

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# Translating Algorithm to Program

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*Submitted by:*  
Gabijan, Rhovic M.

*Instructor:*  
Engr. Maria Rizette H. Sayo

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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. ALGORITHM

1. Start
2. Input grades
3. Store the list of grades
4. Set sum = 0
5. For each number in list;
  - a) If the number is even ( $\text{grades \%2} == 0$ ) -> add it to sum
  - b) If not even -> skip
6. Display the total sum
7. End

## B. FLOWCHART

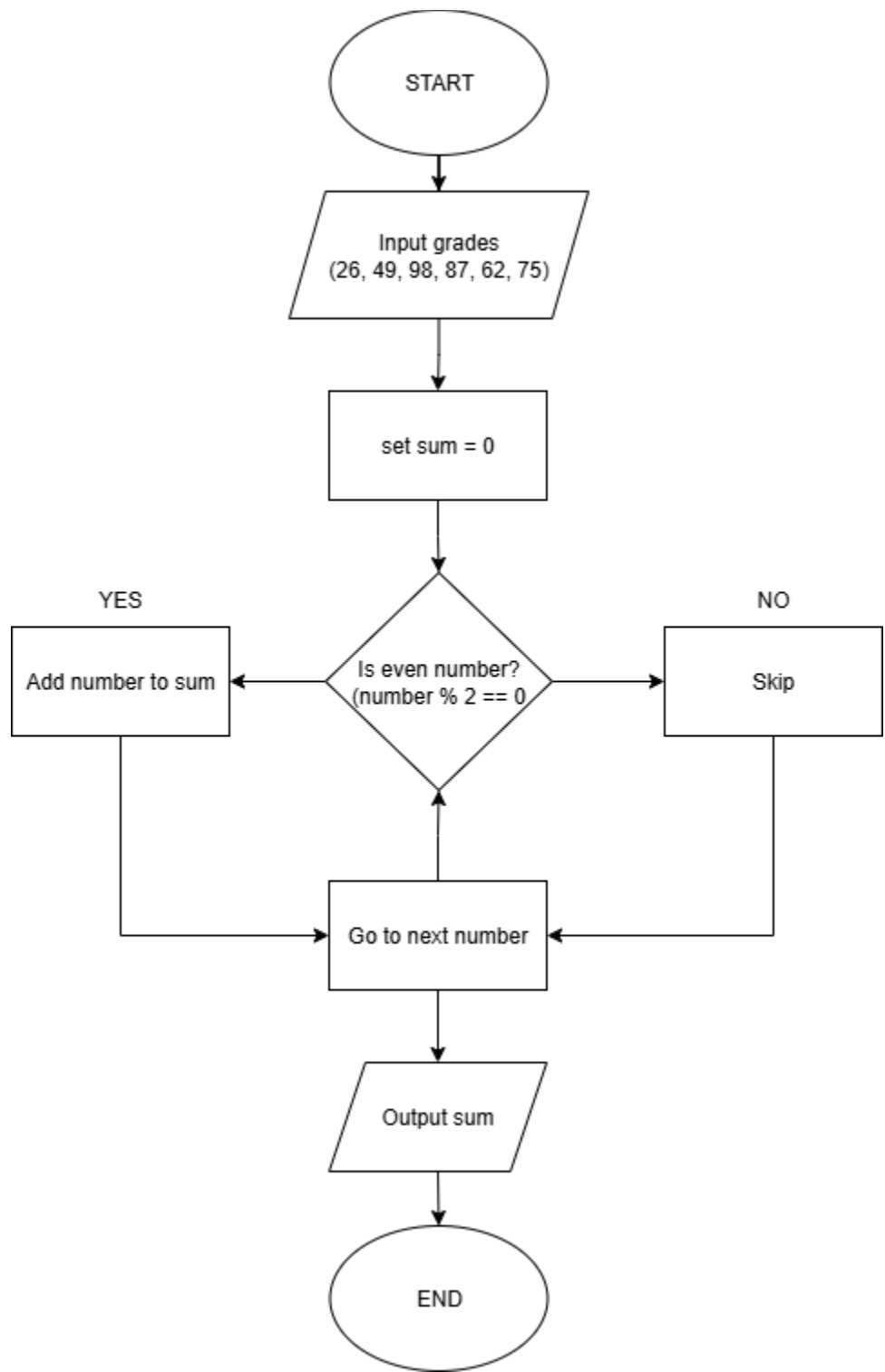


Figure 1.0 Flowchart of the program

The flowchart represents the loop of the program that skip if the grades is not an even number. It continues the loop until it satisfies the end of a list.

```
1  x = int(input("Enter No. of Test: "))
2  scores = []
3  even = 0
4  p = 0
5  for a in range(x):
6      p += 1
7      test = int(input(f"{p}. Enter Test Scores: "))
8      scores.append(test)
9
10
11 for i in scores:
12     if i % 2 == 0:
13         even += i
14
15 print("\nSum of Even test score:", even)
16 print("-"*20)
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS

```
PS C:\Users\Administrator\Desktop\VS CODE> & C:/Users/Administr
Laboratory 3.py"
Enter No. of Test: 6
1. Enter Test Scores: 26
2. Enter Test Scores: 49
3. Enter Test Scores: 98
4. Enter Test Scores: 87
5. Enter Test Scores: 62
6. Enter Test Scores: 75

Sum of Even test score: 186
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PS C:\Users\Administrator\Desktop\VS CODE> S
```

Figure 2.0 Source Code

This is the program that allow user to input the grades using for loop and an empty list. It also used append function so the number that the user put will store in the list and later access using a condition of even number or not.

## IV. Conclusion

The code used a for loop, empty list, append function, and input function. By using a condition (number % 2 == 0), it filters out odd values and ensure that the only it compute is the even number resulting to the sum of 186.

## References

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