



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

Algorithm:

STEP 1: Start

STEP 2: Initialize a variable “Scores”(array of scores) and “Total = 0” (to store the sum of even scores)

STEP 3: Check each test score:

1. If the score is even, add it to the Total
2. If the score is odd, skip it

STEP 4: Print the Total

STEP 5: End

This algorithm show a simple and structured step-by-step process for summing even numbers from the list of scores.

Flowchart:

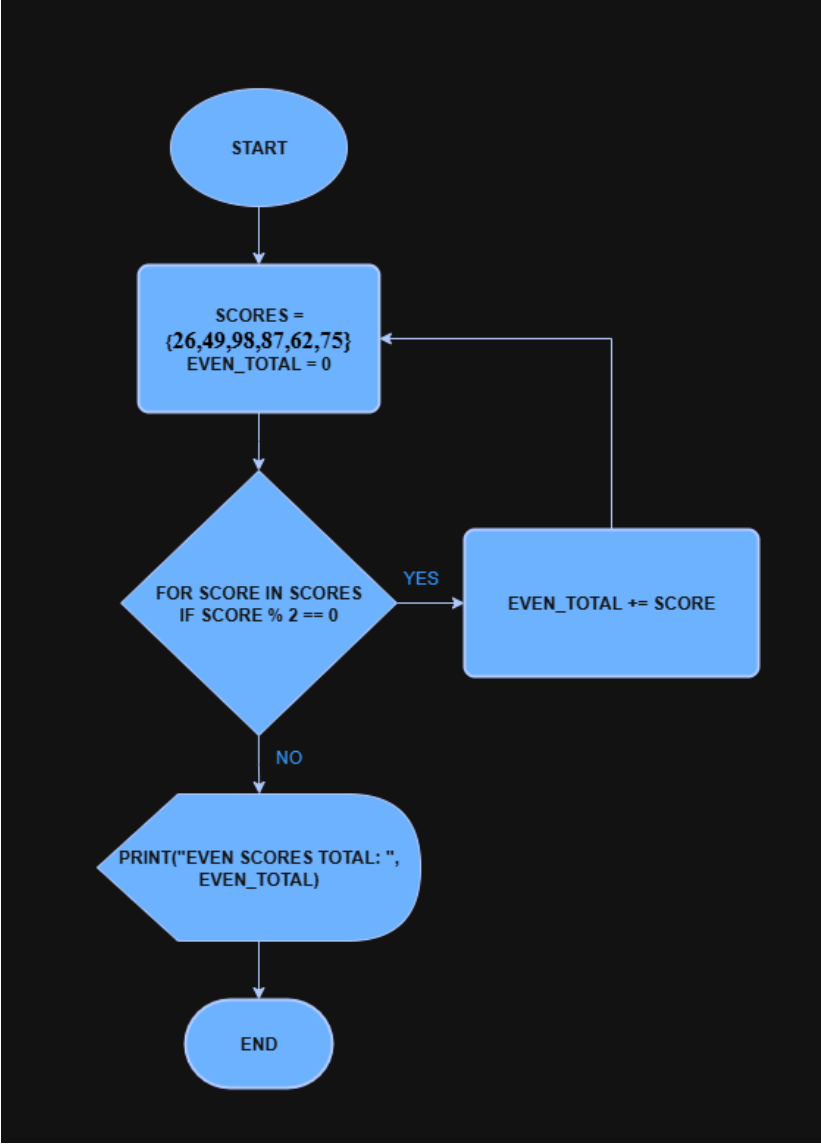


Figure 1 Screenshot of program

This flowchart visually represents the algorithm, it helps to understand the logic flow better.

Source Code:

Please refer to this link:
https://colab.research.google.com/drive/1eEwBqfD48XQbWs4GQoH1Cg8DIzK-_yPC#scrollTo=U_EwkZzhydyl&line=1&uniqifier=1

This link shows the Python implementation of the algorithm. It shows how the steps from the algorithm were written as a working program.

IV. Conclusion

In conclusion, this activity helps us learn how to organize and solve problems using data structures and algorithms. This Laboratory Activity focuses on writing clear programs, writing and choosing the right algorithms, and creating efficient python code to solve problems.

References

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