UNIVERSITY OF CALOOCAN CITY
COMPUTER ENGINEERING DEPARTMENT

Data Structure and Algorithm

Laboratory Activity No. 5

Implementation of Arrays

Submitted by:
Delinia, Filjohn B.

Instructor:
Engr. Maria Rizette H. Sayo

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I. Objectives

Introduction

Array, in general, refers to an orderly arrangement of data elements. Array is a type of data structure that stores data elements in adjacent locations. Array is considered as linear data structure that stores elements of same data types. Hence, it is also called as a linear homogenous data structure.

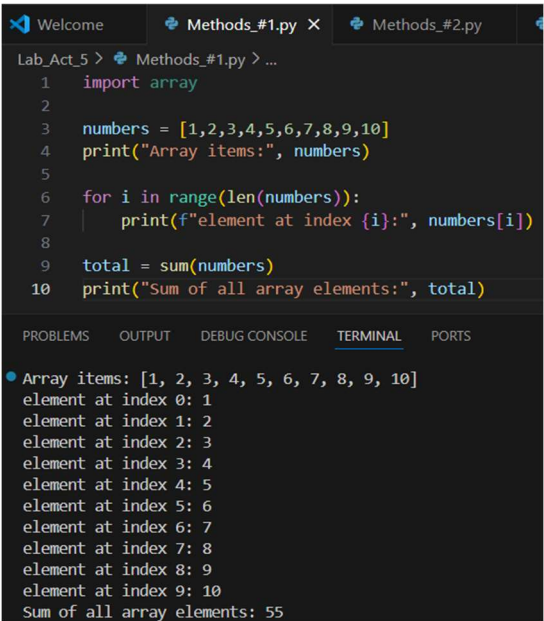This laboratory activity aims to implement the principles and techniques in:

- Writing algorithms using Array data structure
- Writing a python program that can implement Array data structure

II. Methods

- Write a Python program to create an array of 10 integers and display the array items. Access individual elements through indexes and compute for the sum.
- Write a Python program to append a new item to the end of the array. Original array: numbers = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
- Write a Python program to insert a new item before the second element in an existing array. Original array: numbers = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
- Write a Python program to reverse the order of the items in the array. Original array: numbers = [5, 4, 3, 2, 1]

Write a Python program to get the length of the array. Original array: numbers = [5, 4, 3, 2, 1]

III. Results

In this figure, the array has numbers from 1 to 10, each element is accessed by index (0 = first element), and adding them all = 55.

Figure 1.

In this figure, original array had 10 numbers, after appending, 11 is added at the end.

Figure 2.

In this figure, index =1 position of 2nd element (2), and 99 is inserted before 2, shifting orders.

Figure 3.

In this figure, the numbers in the array are reversed.

Figure 4.

In this figure, the array has 5 elements so the length is = 5.

Figure 5.

IV. Conclusion

In this laboratory activity, I learned how to use arrays in python by creating, adding, inserting, reversing, and checking their length. The basic operations show how arrays can store and manage data easily.

References

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