



UNIVERSITY OF CALOOCAN CITY  
COMPUTER ENGINEERING DEPARTMENT



Data Structure and Algorithm

Laboratory Activity No. 5

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# Implementation of Arrays

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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

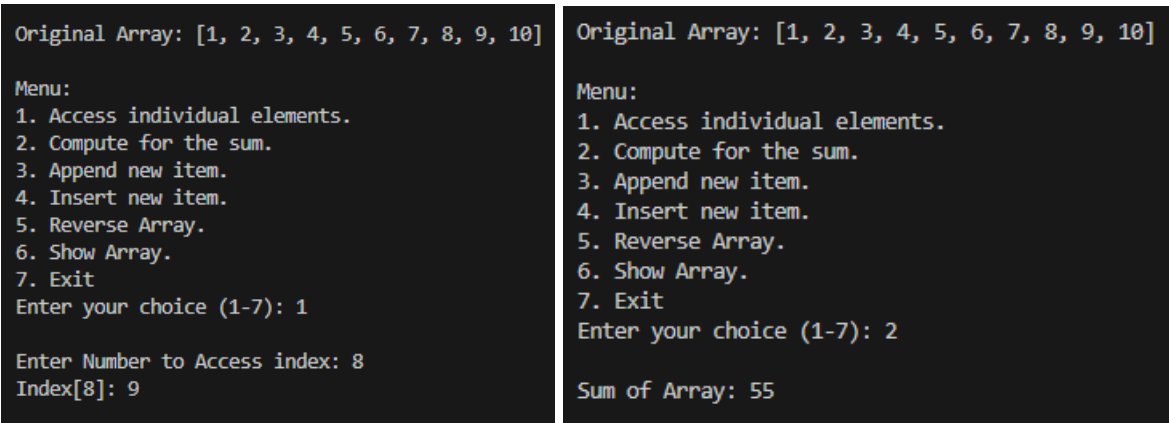


Figure 1.0 Individual Elements and Sum

Original Array: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

Menu:  
1. Access individual elements.  
2. Compute for the sum.  
3. Append new item.  
4. Insert new item.  
5. Reverse Array.  
6. Show Array.  
7. Exit  
Enter your choice (1-7): 3  
  
Enter Value to append: 11  
Value 11 append.

List of Array:

Index[0]: 1  
Index[1]: 2  
Index[2]: 3  
Index[3]: 4  
Index[4]: 5  
Index[5]: 6  
Index[6]: 7  
Index[7]: 8  
Index[8]: 9  
Index[9]: 10  
Index[10]: 11

Figure 2.0 Append at End

Original Array: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

Menu:  
1. Access individual elements.  
2. Compute for the sum.  
3. Append new item.  
4. Insert new item.  
5. Reverse Array.  
6. Show Array.  
7. Show Length of Array.  
8. Exit  
Enter your choice (1-8): 4  
  
Enter number to insert: 12  
Enter Index: 1  
Value 12 insert to index 1.

List of Array:

Index[0]: 1  
Index[1]: 12  
Index[2]: 2  
Index[3]: 3  
Index[4]: 4  
Index[5]: 5  
Index[6]: 6  
Index[7]: 7  
Index[8]: 8  
Index[9]: 9  
Index[10]: 10

Figure 3.0 Insert Before 2nd Index

Original Array: [5, 4, 3, 2, 1]

Menu:  
1. Access individual elements.  
2. Compute for the sum.  
3. Append new item.  
4. Insert new item.  
5. Reverse Array.  
6. Show Array.  
7. Show Length of Array.  
8. Exit  
Enter your choice (1-8): 5  
  
Reversing array:  
Index 4: 1  
Index 3: 2  
Index 2: 3  
Index 1: 4  
Index 0: 5

Figure 4.0 Reverse Order

Original Array: [5, 4, 3, 2, 1]

Menu:  
1. Access individual elements.  
2. Compute for the sum.  
3. Append new item.  
4. Insert new item.  
5. Reverse Array.  
6. Show Array.  
7. Show Length of Array.  
8. Exit  
Enter your choice (1-8): 7  
  
Length of Array: 5

Figure 5.0 Length of Array

The program demonstrates the use of an array that allow user input to manipulate the arrangement of the data. It used the append, insert and reverse method as well as determine the length of an array.

## IV. Conclusion

I concluded that there many ways to arrange the list using an array function. This laboratory helped me to understand the different methods manipulating the data of an array function.

## References

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