UNIVERSITY OF CALOOCAN CITY
COMPUTER ENGINEERING DEPARTMENT

Data Structure and Algorithm

Laboratory Activity No. 5

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

No. 1

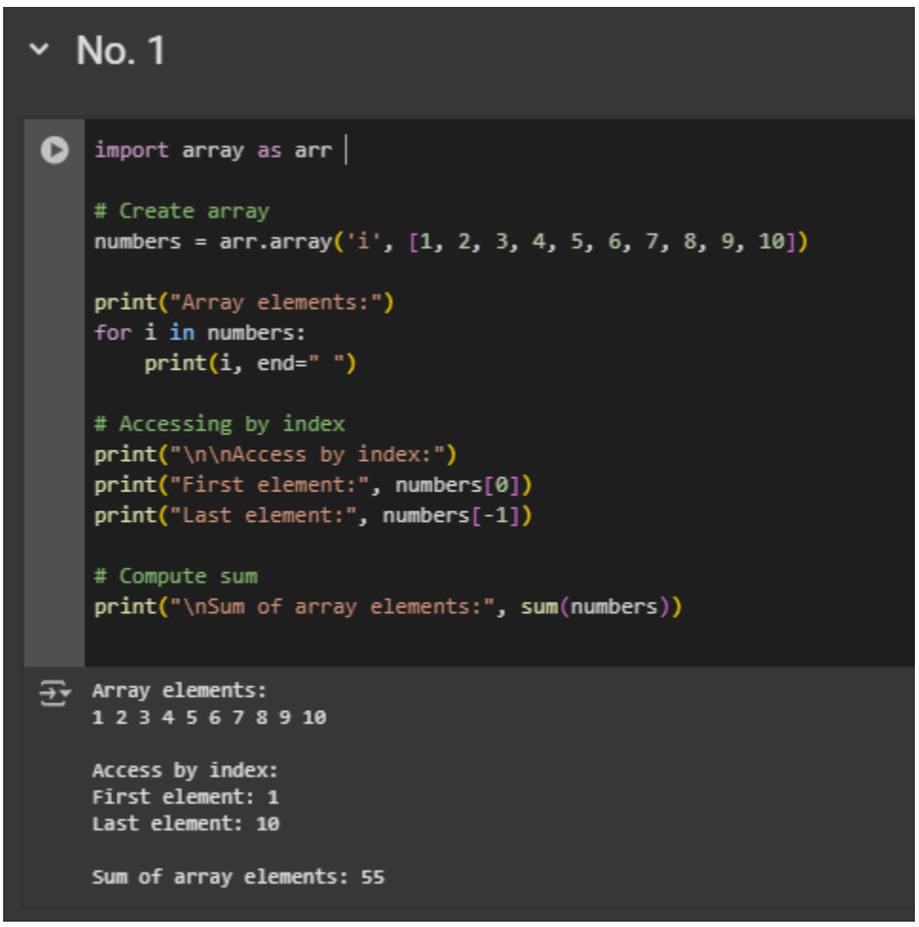

Figure 1 No.1 Source Code

Here I provided a source code for the no.1 method. I created an array which contains 10 integers, I then created a for loop statement to go through the indexes in the array in which I then get all the numbers in which I created a sum of it.

No. 2

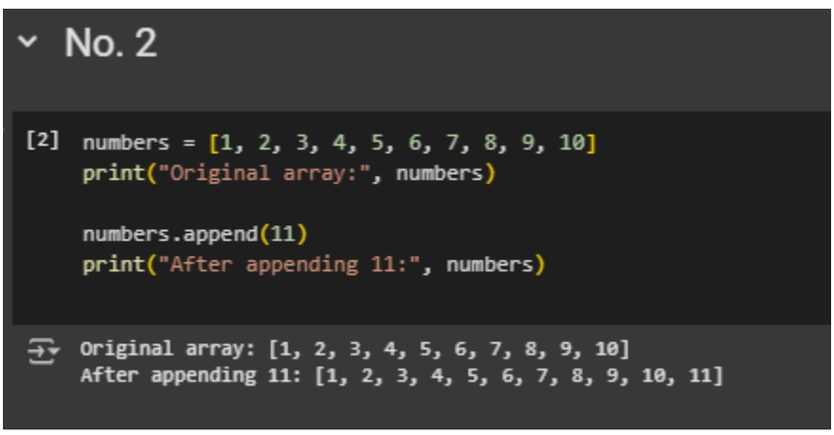

Figure 2 No.2 Source Code

In this code i appended an integer using the .append() in which i added the int 11.

No. 3

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No. 3

[3] numbers = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
    print("Original array:", numbers)

    numbers.insert(1, 100)  # Insert before index 1 (second element)
    print("After inserting 100 before second element:", numbers)

Original array: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
After inserting 100 before second element: [1, 100, 2, 3, 4, 5, 6, 7, 8, 9, 10]
```

Figure 3 No.3 Source Code

In this code, i made the same array with the 10 integer, but then i added a value in between the index of 1 and 2, which results in that output.

No. 4

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No. 4

[4] numbers = [5, 4, 3, 2, 1]
    print("Original array:", numbers)

    numbers.reverse()
    print("Reversed array:", numbers)

Original array: [5, 4, 3, 2, 1]
Reversed array: [1, 2, 3, 4, 5]
```

Figure 4 No.4 Source Code

In this case, it is straightforward, i provided a reversed array using the .reverse()

No. 5

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No. 5

[10] numbers = [5, 4, 3, 2, 1]
     print("Original array:", numbers)
     print("Length of Array:", len(numbers))

Original array: [5, 4, 3, 2, 1]
Length of Array: 5
```

Figure 5 No.5 Source Code

IV. Conclusion

Here I proceeded with the implementation and modification of arrays by first importing arrays. With the sum of arrays, appending values arrays, insert values in arrays, changing the list by reversing the order and lastly finding the length of an array.

References

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[3] “Google Colaboratory,” *Google*, 2025. [Online]. Available: *https://colab.research.google.com*. [Accessed: Aug. 16, 2025].

[4] “Python Arrays,” *W3Schools*, 2025. [Online]. Available: *https://www.w3schools.com/python/python_arrays.asp*. [Accessed: Aug. 16, 2025].

[5] “GitHub: Where the world builds software,” *GitHub, Inc.*, 2025. [Online]. Available: https://github.com. [Accessed: Aug. 16, 2025].