MIT World Peace University

Object Oriented Programming with Java and C++
Second Year B. Tech, Semester 1

Case Study - Elements of an Array

Project Report

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Contents

1 Aim

To perform a Case study on the given problem statement, and implement the problem in C++ and Java

2 Problem Statement

Write a C++ and Java Program to Calculate Average of elements in an Integer Arrays.Take input values.Also display number of elements which are greater than average value.

3 Platform

Operating System: Arch Linux x86-64
IDEs or Text Editors Used: Visual Studio Code
Compilers : g++ and gcc on linux for C++, and javac, with JDK 18.0.2 for Java

4 Flowchart

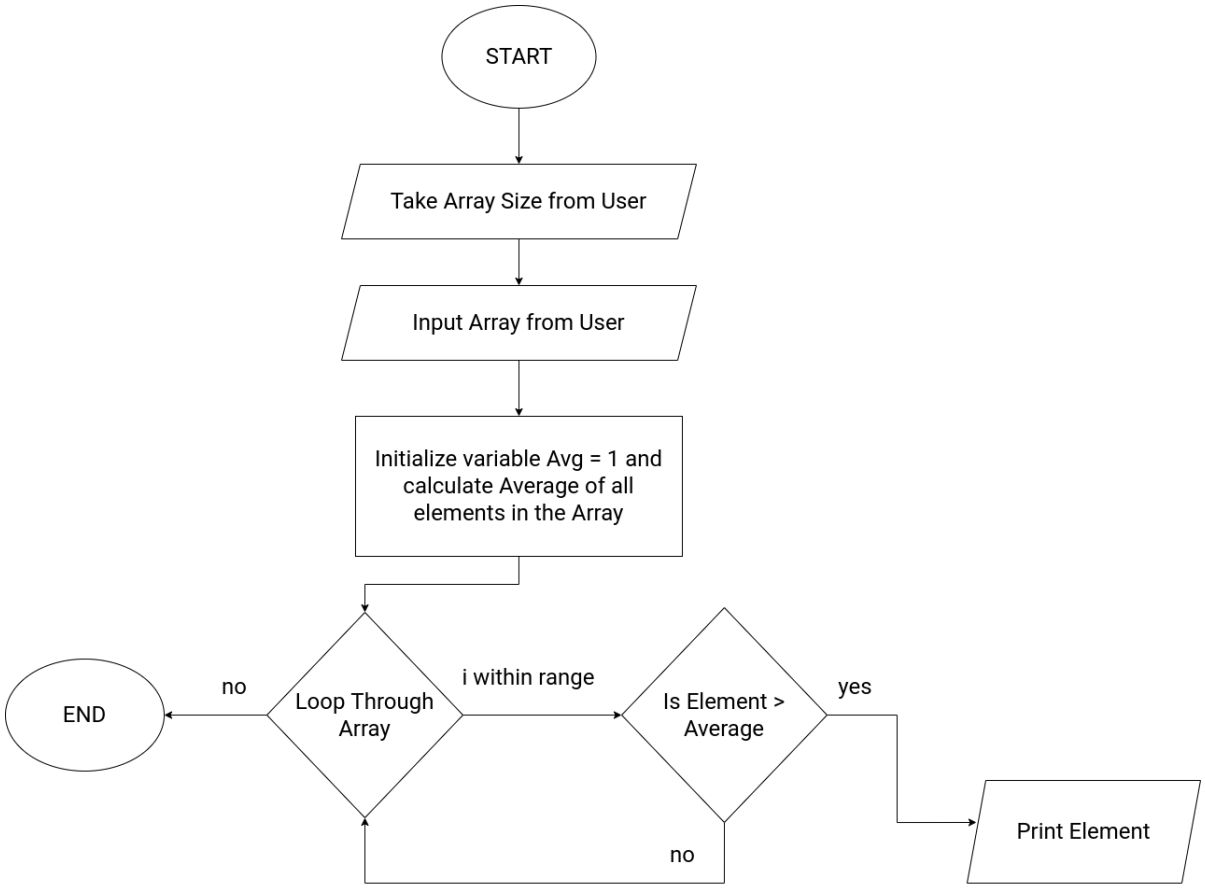


Figure 1: Flowchart for Algorithm

5 Algorithm

```
STEP 1: Start
STEP 2: Input Length of Array from user
STEP 3: Input the Array from the user
STEP 4: Initialize a variable avg to 1, and find average of Array
STEP 5: Loop through the array, if element is greater than average then print it.
STEP 6: Exit.
```

6 Code

6.1 C++ Implementation of Problem

```cpp
// C++ and Java Program to Calculate Average of elements in an Integer Arrays.Take input values.Also d
isplay number of elements which are greater than average value.

#include <iostream>
using namespace std;
int main()
{
    int size = 10, average = 0;
    cout << "What size array do you want? " << endl;
    cin >> size;
    int arr[size];
    cout << "Enter the elements of the array!" << endl;
    for (int i = 0; i < size; i++)
    {
        cin >> arr[i];
        average += arr[i];
    }
    average /= size;
    cout << "The Average of all the elements in the array is: " << average << endl;
    cout << "The Elements of the Array which are greater than the Average of the Array are: " << endl;
    for (int i = 0; i < size; i++)
    {
        if (arr[i] > average)
        {
            cout << arr[i] << endl;
        }
    }

    return 0;
}
```

Figure 2:

6.2 Java Implementation of Problem

```java
import java.util.*;;

public class Main {
    static Scanner input = new Scanner(System.in);

    public static void main(String[] args) {

        int size = 10, average = 0;
        System.out.println("Enter the size of the Array that you want to enter");
        size = input.nextInt();
        Integer arr[] = new Integer[size];
        System.out.println("Enter the Elements of the Array: ");
        for (int i = 0; i < size; i++) {
            arr[i] = input.nextInt();
            average += arr[i];
        }
        average /= size;
        System.out.println("The Average of All the Elements that you have entered is: " + average);
        System.out.println("The Elements that are above the Average of all the elements are: ");
        for (int i = 0; i < size; i++) {
            if (arr[i] > average) {
                System.out.println(arr[i] + " ");
            }
        }
    }
}
```

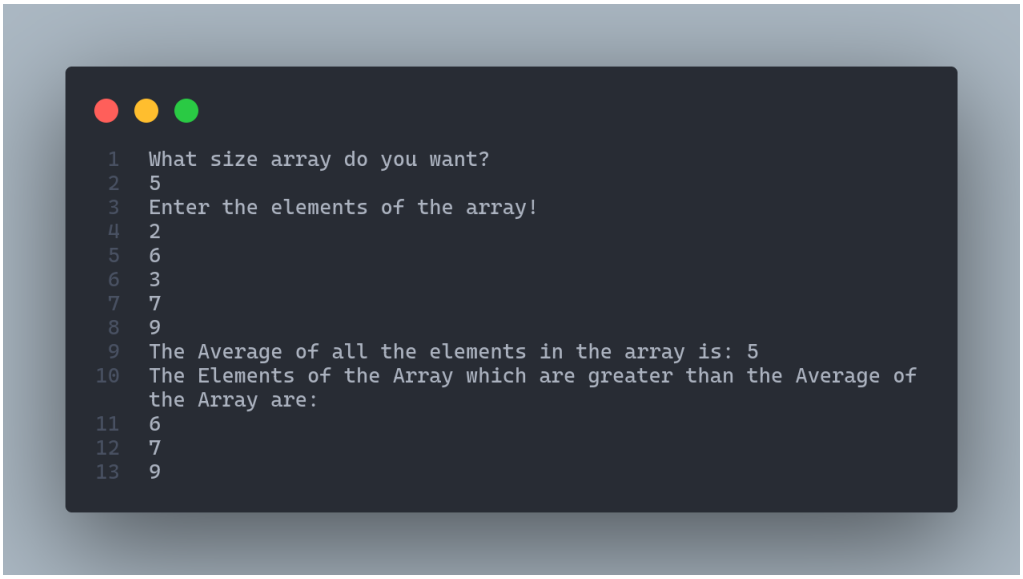
Figure 3:

6.3 Input

1. Length of the Array
2. The Elements of the Array

6.4 Output

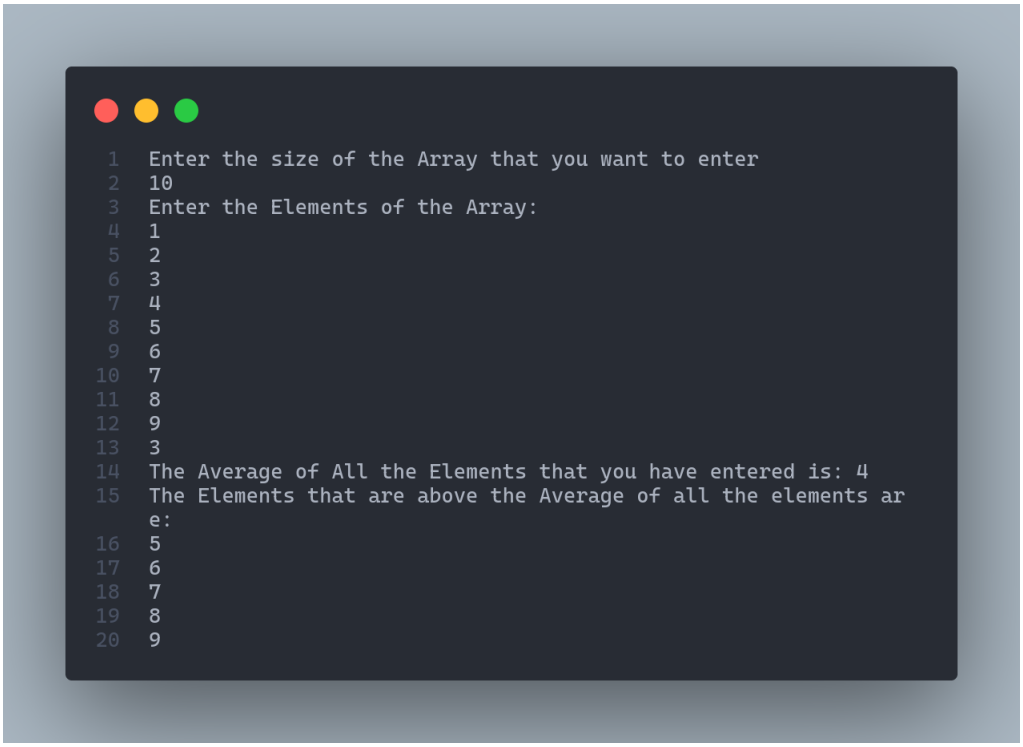
6.5 C++ Output



```
What size array do you want?
5
Enter the elements of the array!
2
6
3
7
9
The Average of all the elements in the array is: 5
The Elements of the Array which are greater than the Average of the Array are:
6
7
9
```

Figure 4:

6.6 Java Output



```
Enter the size of the Array that you want to enter
10
Enter the Elements of the Array:
1
2
3
4
5
6
7
8
9
3
The Average of All the Elements that you have entered is: 4
The Elements that are above the Average of all the elements are:
5
6
7
8
9
```

Figure 5: