



National University of Sciences and Technology (NUST), Balochistan Campus (NBC).

Assignment, lab10

Department:
Computer Science

Course Title:
**Fundamental of
programming (Lab)**

Course Code:
CS-110

ASSIGNMENT TOPIC:

➤ **Arrays**

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Student sign

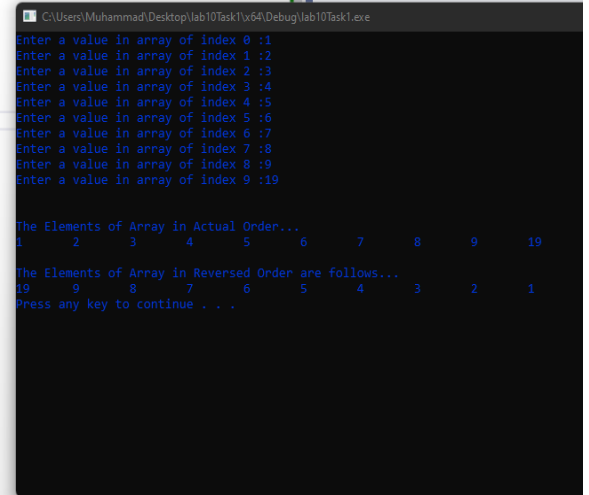
Instructor sign

Task#1

Write a program to print array elements in reverse order.

Solution:

```
1 #include<iostream> // Preprocessor Directives used to include input and output streams.
2 #include<windows.h> // Used to access the Win32 API functions
3 using namespace std; // We use the namespace named std.
4 // The starting point for program execution, main().
5 int main() {
6     int c = 0;
7     // Using this to change the color of text.
8     while (c < 2) {
9         // This function sets the attributes of characters.
10        SetConsoleTextAttribute(GetStdHandle(STD_OUTPUT_HANDLE), c);
11        c++;
12    }
13    int arr[10]; // Declared array of data type int, named 'arr' and of size 10.
14    // Inputting 10 values in the array.
15    for (int i = 0; i < 10; i++) {
16        cout << "Enter a value in array of index " << i << " : ";
17        cin >> arr[i];
18    }
19    // Displaying the entered values in their actual Order.
20    cout << "\n\nThe Elements of Array in Actual Order...\n";
21    for (int j = 0; j < 10; j++) {
22        cout << arr[j] << "\t";
23    }
24    // Then displaying the values in their reversed Order.
25    cout << "\n\nThe Elements of Array in Reversed Order are follows...\n";
26    for (int k = 9; k >= 0; k--) {
27        cout << arr[k] << "\t";
28    }
29    cout << endl; // Used to have the control in next line.
30    system("pause"); // Stops the program in run time.
31    return 0; // Return 0 to calling point of main(), function.
32 }
```



```
C:\Users\Muhammad\Desktop\lab10Task1\Debug\lab10Task1.exe
Enter a value in array of index 0 :1
Enter a value in array of index 1 :2
Enter a value in array of index 2 :3
Enter a value in array of index 3 :4
Enter a value in array of index 4 :5
Enter a value in array of index 5 :6
Enter a value in array of index 6 :7
Enter a value in array of index 7 :8
Enter a value in array of index 8 :9
Enter a value in array of index 9 :19

The Elements of Array in Actual Order...
1   2   3   4   5   6   7   8   9   19

The Elements of Array in Reversed Order are follows...
19  9   8   7   6   5   4   3   2   1

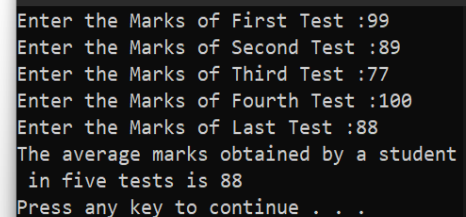
Press any key to continue . . .
```

Task#2

Write a program to print the average marks obtained by a student in five tests.

Solution:

```
1 #include<iostream> // Preprocessor Directives used to include input and output streams.
2 using namespace std; // We use the namespace named std.
3 // The starting point for program execution, main().
4 int main() {
5     int testObtainedMarks[5], averageMarks=0; // Delcared an int array named testobtainedMark of size 5 for storing the test marks.
6     // Storing values in the array, testObtainedMarks.
7     for (int i = 0; i < 5; i++) {
8         if (i == 0) {
9             cout << "Enter the Marks of First Test :";
10            cin >> testObtainedMarks[i]; // Getting the first test.
11        }
12        else if (i == 1) {
13            cout << "Enter the Marks of Second Test :";
14            cin >> testObtainedMarks[i]; // Getting the second test.
15        }
16        else if (i == 2) {
17            cout << "Enter the Marks of Third Test :";
18            cin >> testObtainedMarks[i]; // Getting the third test.
19        }
20        else if (i == 3) {
21            cout << "Enter the Marks of Fourth Test :";
22            cin >> testObtainedMarks[i]; // Getting the fourth test.
23        }
24        else {
25            cout << "Enter the Marks of Last Test :";
26            cin >> testObtainedMarks[i]; // Getting the fifth test.
27        }
28        averageMarks = averageMarks + testObtainedMarks[i]/5.0; // Calculating the average marks obtained by a student in five tests.
29    }
30    cout << "The average marks obtained by a student in five tests is " << averageMarks << endl;
31    system("pause"); // Pause the system/
32    return 0; // Return 0 to calling point.
33 }
```



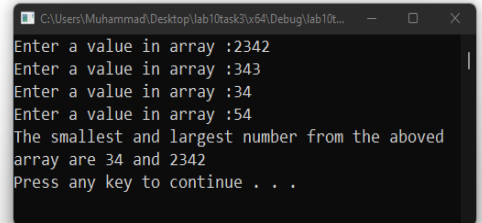
```
C:\Users\Muhammad\Desktop\lab10Task2\Debug\lab1...
Enter the Marks of First Test :99
Enter the Marks of Second Test :89
Enter the Marks of Third Test :77
Enter the Marks of Fourth Test :100
Enter the Marks of Last Test :88
The average marks obtained by a student
in five tests is 88
Press any key to continue . . .
```

Task#3

Write a function that takes array as input and finds the largest and smallest numbers.

Solution:

```
1  #include<iostream>    // Preprocessor Directives used to include input and output streams.
2  using namespace std;  // We use the namespace named std.
3  void arrayInput();    // Function Prototype used when a function is declared after main() function.
4  // The starting point for program execution, main().
5  int main() {
6      arrayInput();      // Calling the User defined function, arrayInput.
7
8      system("pause");   // Pause the system
9      return 0;         // Return 0 to calling point.
10 }
11 // void function means no return value.
12 void arrayInput() {
13     int smallestAndLargest[5], smallest, largest; // Declared smallestAndLargest array with size, 5. smallest & largest are declared to store their very values.
14     // Inputting values in the array by User.
15     for (int i = 0; i < 5; i++) {
16         cout << "Enter a value in array :";
17         cin >> smallestAndLargest[i];
18     }
19     smallest = smallestAndLargest[0]; // Considering the 1st value of array, the smallest one.
20     largest = smallestAndLargest[0]; // Also considering the 1st value of array, the largest one.
21     // Checking each value of array for the smallest and largest one.
22     for (int j = 0; j < 5; j++) {
23         if (smallest >= smallestAndLargest[j]) {
24             smallest = smallestAndLargest[j];
25         }
26         if (largest <= smallestAndLargest[j]) {
27             largest = smallestAndLargest[j];
28         }
29     }
30     cout << "The smallest and largest number from the above array are " << smallest << " and " << largest << endl; // Displaying the final value.
31 }
```



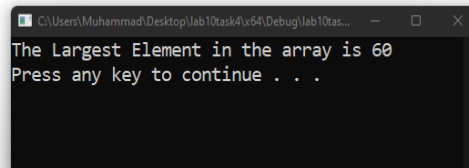
```
C:\Users\Muhammad\Desktop\lab10task3\Debug\lab10t...
Enter a value in array :2342
Enter a value in array :343
Enter a value in array :34
Enter a value in array :54
The smallest and largest number from the above
array are 34 and 2342
Press any key to continue . . .
```

Task#4

Write a program to find the largest element in the array.

Solution:

```
1  #include<iostream>    // Preprocessor Directives used to include input and output streams.
2  using namespace std;  // We use the namespace named std.
3  // The starting point for program execution, main().
4  int main() {
5      int arr[10] = { 1,2,3,4,5,60,7,8,9,10 }, maximum; // Declared and assigned arr of size 10 and maximum for holding the largest number.
6      maximum = arr[0]; // Making the 1st value of Array, the largest.
7      // Checking by a condition of each element of the array for largest one.
8      for (int i = 0; i < 10; i++) {
9          if (maximum <= arr[i]) {
10             maximum = arr[i];
11         }
12     }
13     cout << "The Largest Element in the array is " << maximum << endl; // Displaying the final result.
14     system("pause"); // Stops the console.
15     return 0; // Return 0 to the calling point.
16 }
```



```
C:\Users\Muhammad\Desktop\lab10task4\Debug\lab10tas...
The Largest Element in the array is 60
Press any key to continue . . .
```

THE END