



**Ripah International University**

# **Data Structure (Lab)**

## **Lab Task 2<sup>nd</sup>**

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Name: Mir Ahmad Shah

Sap id: 54906

Instructor: Mr. Zeeshan Ali

Section: BSCS (3-1)

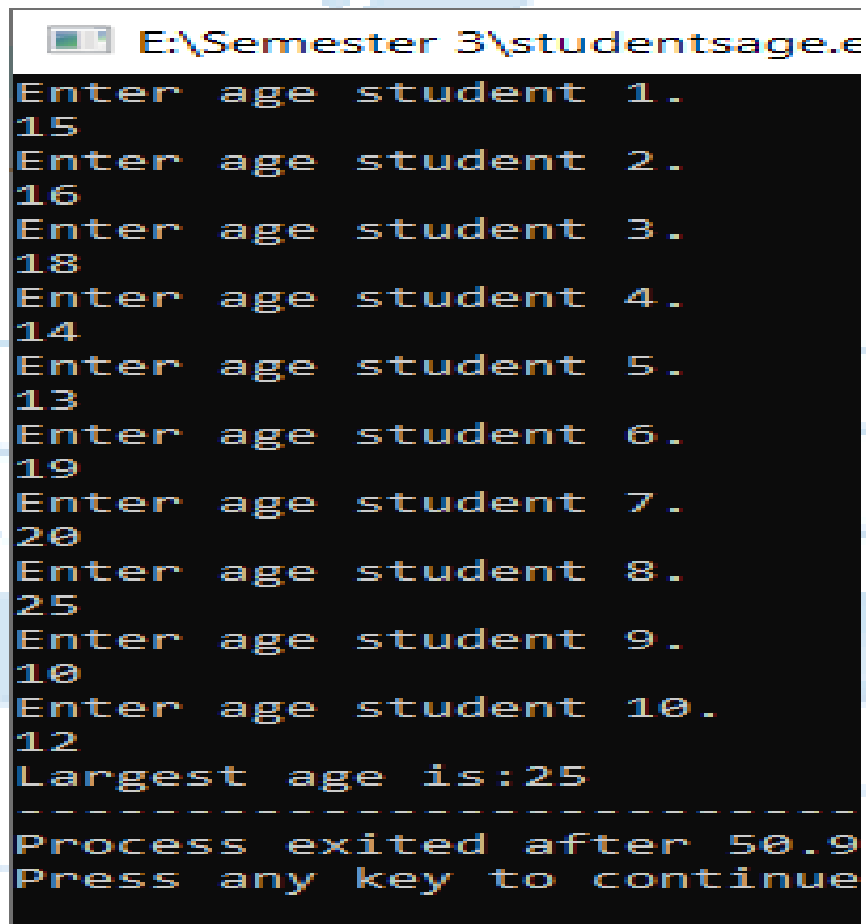
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**1:**

```
#include<iostream>
using namespace std;
```

```
int main()
{
    int age[10], i, largestnum=0;

    for(i=0;i<10;i++)
    {
        cout<<"Enter age student "<<i+1<<".\n";
        cin>>age[i];
    }
    for(i=0;i<10;i++)
    {
        if(age[i]>largestnum)
        {
            largestnum=age[i];
        }
    }
    cout<<"Largest age is:"<<largestnum;
    return 0;
}
```

A screenshot of a Windows command prompt window titled "E:\Semester 3\studentsage.e". The window shows the execution of a C++ program. It prompts the user to enter the age of 10 students. The inputs are: 15, 16, 18, 14, 13, 19, 20, 25, 10, and 12. The program then outputs "Largest age is:25". Below this, it shows "Process exited after 50.9" and "Press any key to continue".

```
E:\Semester 3\studentsage.e
Enter age student 1.
15
Enter age student 2.
16
Enter age student 3.
18
Enter age student 4.
14
Enter age student 5.
13
Enter age student 6.
19
Enter age student 7.
20
Enter age student 8.
25
Enter age student 9.
10
Enter age student 10.
12
Largest age is:25
-----
Process exited after 50.9
Press any key to continue
```

## 2:

```
#include<iostream>
#include<iomanip>
using namespace std;
```

```
int main()
{
    int arr, i, j, k;
    cout<<"Enter the array size."<<endl;
    cin>>arr;
    int *arr1=new int(arr);
    int *arr2=new int(arr);
    int *arr3=new int(arr);
    int *arr4=new int(arr);
    cout<<"Array 1:"<<endl;
    for(i=0;i<arr;i++)
    {
        cout<<"Enter num "<<i+1<<":\n";
        cin>>arr1[i];
    }
    cout<<"Array 2:"<<endl;
    for(j=0;j<arr;j++)
    {
        cout<<"Enter num "<<i+1<<":\n";
        cin>>arr2[j];
    }
    cout<<"Array 3:"<<endl;
    for(k=0;k<arr;k++)
    {
        cout<<"Enter num "<<i+1<<":\n";
        cin>>arr3[k];
    }
    for(i=0;i<arr;i++)
    {
        arr4[i]=arr1[i]+arr2[i]+arr3[i];
        cout<<setw(5)<<arr4[i];
    }

    return 0;
}
```

```
Select E:\Semester 3\addarr.  
Enter the array size.  
3  
Array 1:  
Enter num 1:  
5  
Enter num 2:  
7  
Enter num 3:  
4  
Array 2:  
Enter num 4:  
2  
Enter num 4:  
3  
Enter num 4:  
4  
Array 3:  
Enter num 4:  
1  
Enter num 4:  
4  
Enter num 4:  
7  
8 14 15  
-----  
Process exited after 36.5  
Press any key to continue
```

**3:**

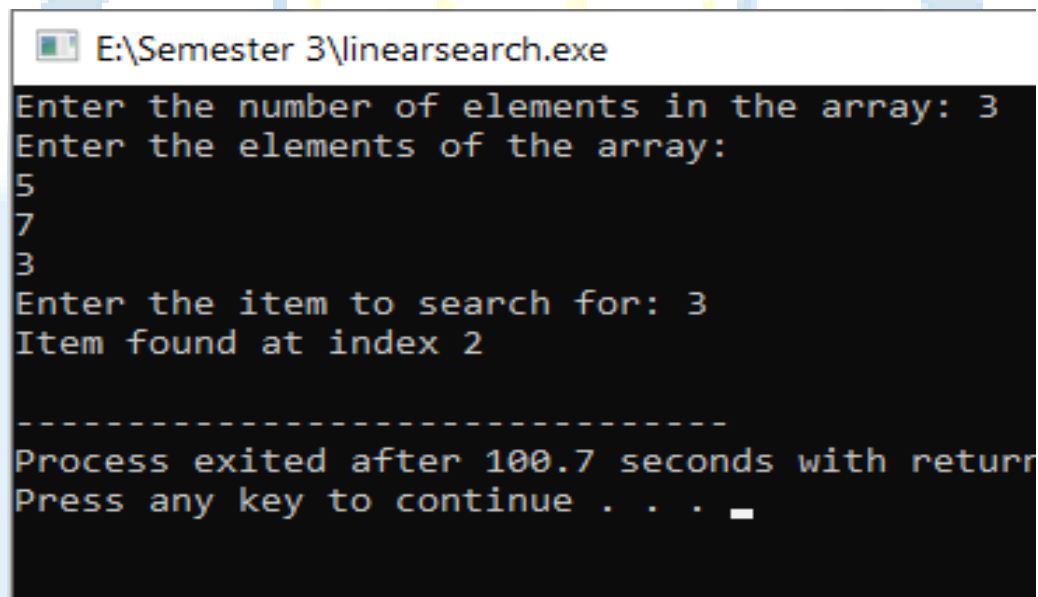
```
#include <iostream>  
using namespace std;
```

```
int linearSearch(int* arr, int size, int item) {  
    for (int i = 0; i < size; ++i) {  
        if (arr[i] == item) {  
            return i;  
        }  
    }  
    return -1;  
}
```

```
int main() {  
    int n, searchItem;  
    cout << "Enter the number of elements in the array: ";  
    cin >> n;  
    int* arr = new int[n];  
    cout << "Enter the elements of the array:\n";  
    for (int i = 0; i < n; ++i) {
```

```
    cin >> arr[i];
}
cout << "Enter the item to search for: ";
cin >> searchItem;
int result = linearSearch(arr, n, searchItem);
if (result != -1) {
    cout << "Item found at index " << result << endl;
} else {
    cout << "Item not found in the list." << endl;
}
delete[] arr;

return 0;
}
```



```
E:\Semester 3\linearsearch.exe
Enter the number of elements in the array: 3
Enter the elements of the array:
5
7
3
Enter the item to search for: 3
Item found at index 2

-----
Process exited after 100.7 seconds with return
Press any key to continue . . .
```

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