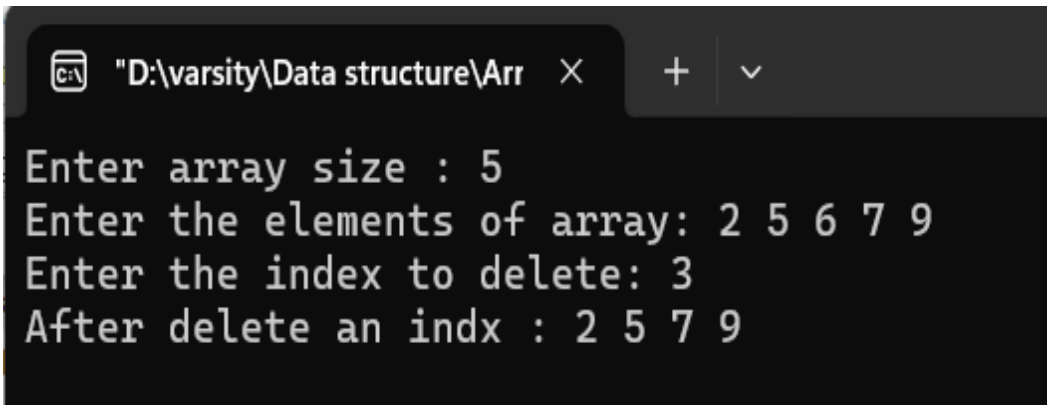
Task 01 . Array access, insert, deletion

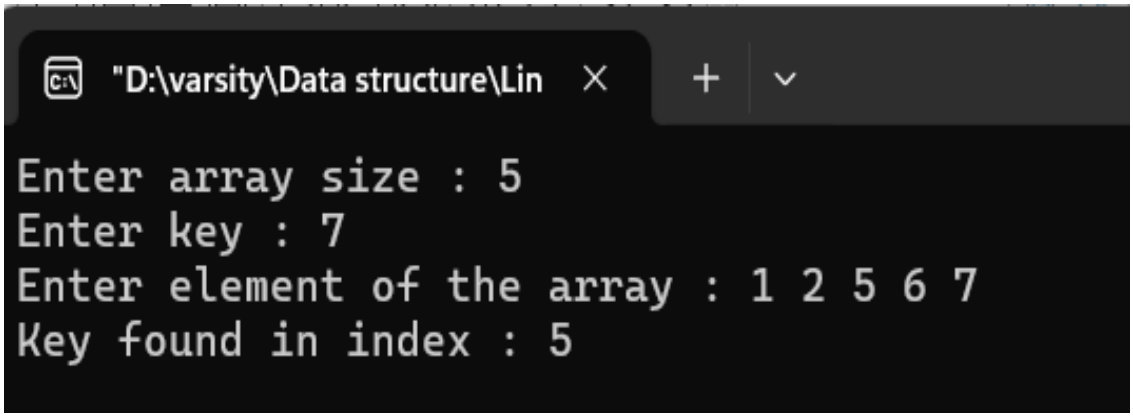
```
#include <bits/stdc++.h>
using namespace std;
int main(){
    int n;
    cout<<"Enter array size : "; cin>>n;
    int arr[n];
    cout<<"Enter the elements of array: ";
    for(int i=0;i<n;i++) cin>>arr[i];
    int indx;
    cout<<"Enter the index to delete: "; cin>>indx;
    for(int i=indx-1;i<n;i++){
        arr[i]=arr[i+1]; }
    cout<<"After delete an indx : ";
    for(int i=0;i<n-1;i++){
        cout<<arr[i]<<" "; }
}
```

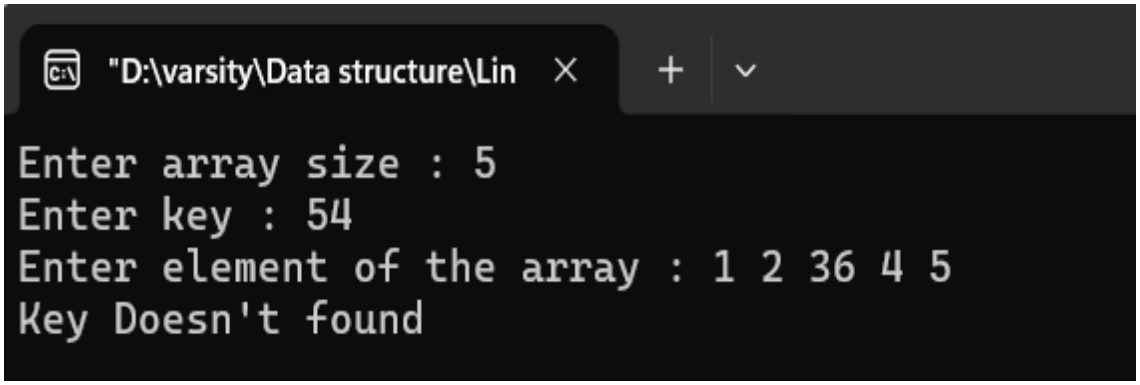


Task 02 .Linear Search.

```
#include<bits/stdc++.h>
using namespace std;
int main(){
    int n;
    cout<<"Enter array size : "; cin >> n;
    int key;
    cout<<"Enter key : "; cin >> key;
    int arr[n];
    bool f = true;
    cout<<"Enter element of the array : ";
    for(int i=0; i<n; i++) cin >> arr[i];
    for(int i=0; i<n; i++){
        if(arr[i] == key){
            cout<<"Key found in index : "<<(i+1)<<'\n';
            f = false;
            break;
        }
    }
    if(f){
        cout<<"Key Doesn't found"<<'\n';
```

```
    }
}
```

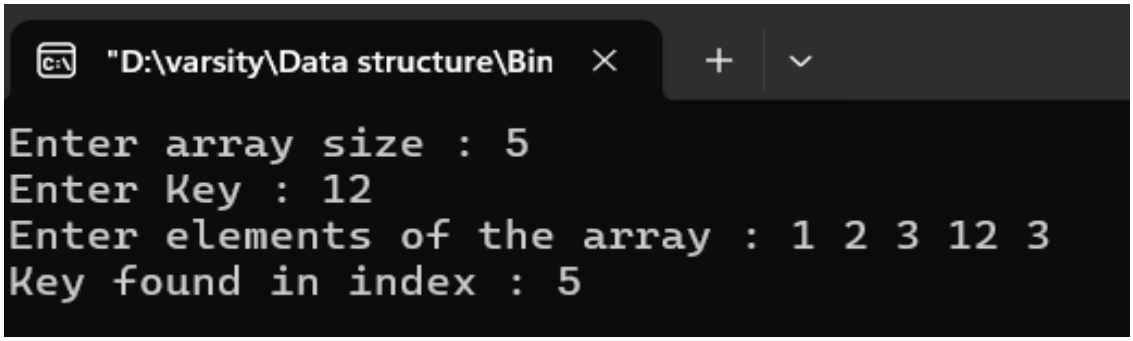

"D:\varsity\Data structure\Lin
Enter array size : 5
Enter key : 7
Enter element of the array : 1 2 5 6 7
Key found in index : 5

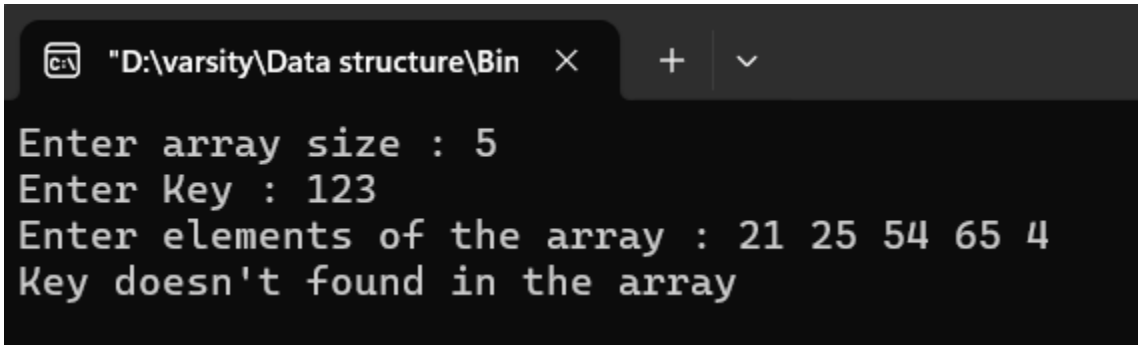

"D:\varsity\Data structure\Lin
Enter array size : 5
Enter key : 54
Enter element of the array : 1 2 36 4 5
Key Doesn't found

Task 03 .Binary Search

```
#include<bits/stdc++.h>
using namespace std;
int main(){
    int n;
    cout<<"Enter array size : "; cin >> n;
    int key;
    cout<<"Enter Key : "; cin >> key;
    int arr[n];
    cout<<"Enter elements of the array : ";
    for(int i=0; i<n; i++) cin >> arr[i];
    sort(arr,arr+n);
    bool f = true;
    int left=0, right=n-1;
    while(left <= right){
        int mid = (left+right)/2;
        if(arr[mid] == key){
            cout<<"Key found in index : "<<mid+1<<endl;
            f = false;
            break;
        }
```

```
        else if(arr[mid] < key){
            left = mid+1;
        }
        else if(arr[mid] > key){
            right = mid-1;
        }
    }
    if(f){
        cout<<"Key doesn't found in the array"<<endl;
    }
}
```





Task 04 .First Pattern Matching Alogorithm

```
#include<bits/stdc++.h>
using namespace std;
int main(){
    string s1;
    cout<<"Enter string : "; cin >> s1;
    string s2;
    cout<<"Enter Pattern : "; cin >> s2;
    int a = s1.size();
    int b = s2.size();
    int sz = a-b+1;
    bool flag = true;
    for(int i=0; i<sz; i++){
        bool f = true;
        for(int j=0; j<b && f==true; j++){
            if(s1[i+j] != s2[j]){
                f = false;
            }
        }
        if(f==true){
            cout<<"Pattern Matching in index : "<<i<<endl;
            flag = false;
            break;
```

```
        }
    }
    if(flag){
        cout<<"Pattern doesn't matching in the
string"<<endl;
    }
}
```