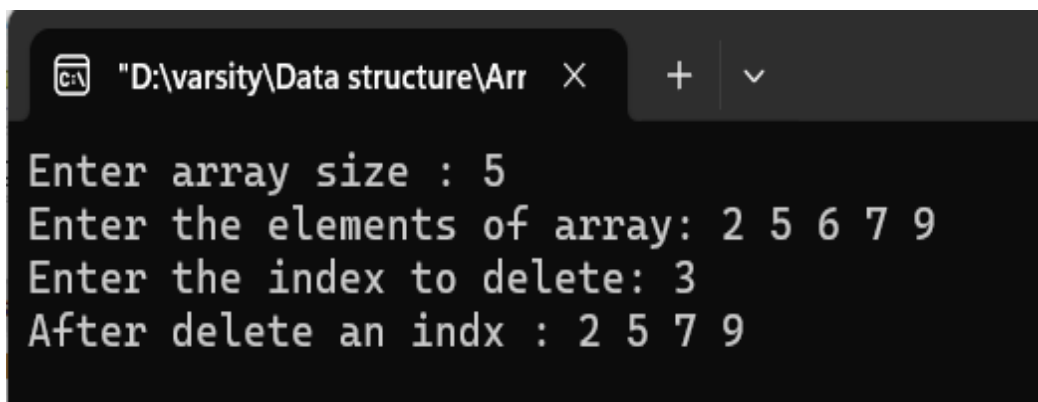


## Task 01 . Array access, insert, deletion

```
#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]<<" "; }
}
```

A screenshot of a C++ program execution in a terminal window. The window title is "D:\varsity\Data structure\Arr". The program prompts the user to enter the array size (5), the elements of the array (2 5 6 7 9), and the index to delete (3). The output shows the array after deletion: 2 5 7 9.

```
"D:\varsity\Data structure\Arr" × + v
Enter array size : 5
Enter the elements of array: 2 5 6 7 9
Enter the index to delete: 3
After delete an indx : 2 5 7 9
```

## 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";
    }
}
```

```
}  
}
```

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

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

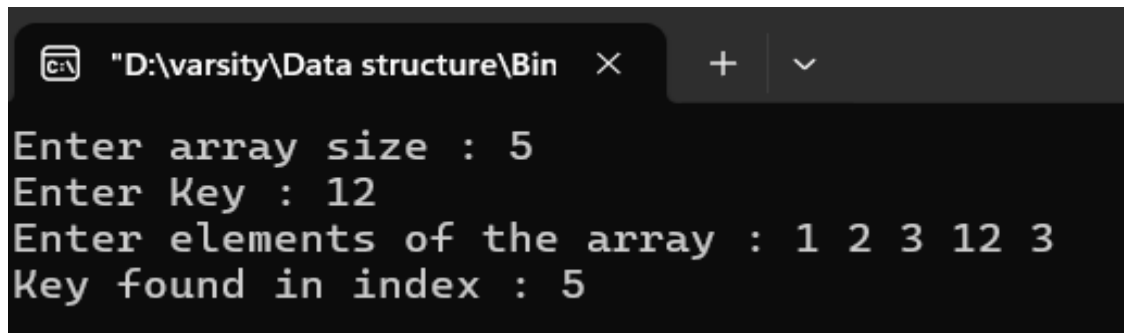
## Task 03 .Binary Search

```
#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;
}
}

```

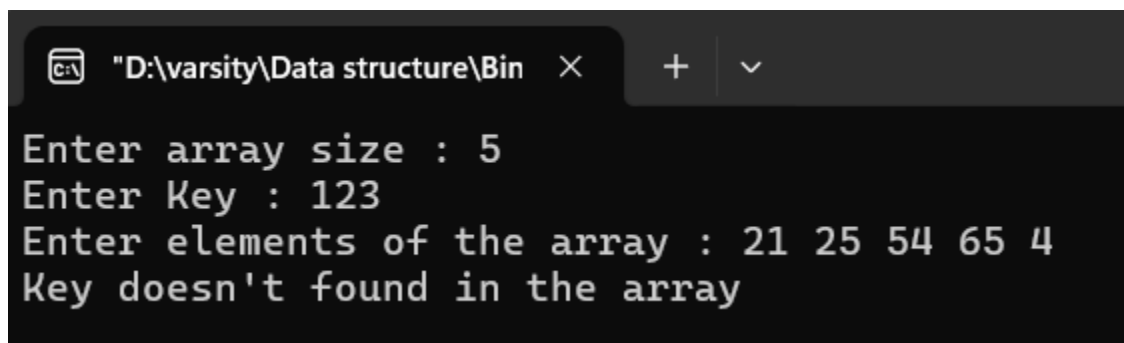


A screenshot of a C++ program execution window titled "D:\varsity\Data structure\Bin". The program prompts the user to enter the array size (5), the key (12), and the elements of the array (1 2 3 12 3). It then outputs "Key found in index : 5".

```

Enter array size : 5
Enter Key : 12
Enter elements of the array : 1 2 3 12 3
Key found in index : 5

```



A screenshot of a C++ program execution window titled "D:\varsity\Data structure\Bin". The program prompts the user to enter the array size (5), the key (123), and the elements of the array (21 25 54 65 4). It then outputs "Key doesn't found in the array".

```

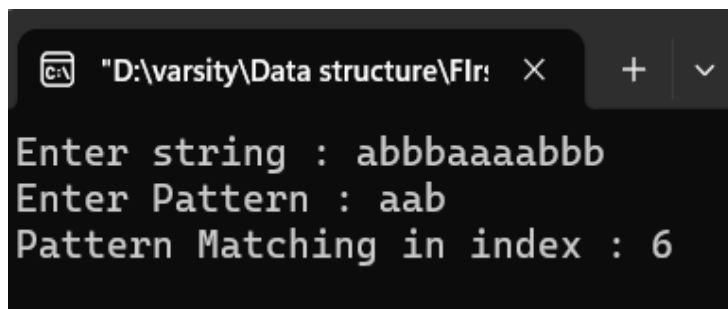
Enter array size : 5
Enter Key : 123
Enter elements of the array : 21 25 54 65 4
Key doesn't found in the array

```

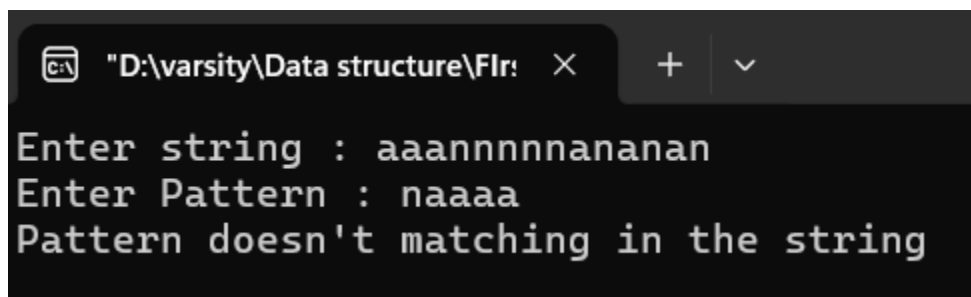
## Task 04 .First Pattern Matching Algorithm

```
#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;  
}  
}
```



A screenshot of a Windows command prompt window. The title bar shows the file path "D:\varsity\Data structure\FI: ". The prompt displays the following text: "Enter string : abbbaaaabbb", "Enter Pattern : aab", and "Pattern Matching in index : 6".



A screenshot of a Windows command prompt window. The title bar shows the file path "D:\varsity\Data structure\FI: ". The prompt displays the following text: "Enter string : aaannnnnananan", "Enter Pattern : naaaa", and "Pattern doesn't matching in the string".