

ARRAY

Traversal

```
#include <bits/stdc++.h>
using namespace std;

void PrintArray(int array[],int size){

    for(int i=0; i<size;i++){
        cout<<array[i]<<" ";

    }

    cout<< endl;
}

int main() {

    int array[50];
    int size;
    cin>>size;

    for(int i=0; i<size;i++){
        cin>>array[i];
    }

    cout<< "Given Array : ";
    PrintArray(array,size);

    return 0;
}
```

INSATIATION

```
#include <bits/stdc++.h>
using namespace std;

void PrintArray(int array[],int size){
    for(int i=0; i<size;i++){
```

```

        cout<<array[i]<<" ";
    }
    cout<< endl;
}
int main() {
    int array[50];
    int size;
    cout<<"Please Enter The Size : ";
    cin>>size;

    cout<<"Please Enter The Element of Array : ";

    for(int i=0; i<size;i++){

        cin>>array[i];
    }
    cout<< "Given Array : ";
    PrintArray(array,size);

    int pos,value;
    cout<<"Please Enter The Position : ";
    cin>>pos;
    cout<<"Please Enter The value : ";
    cin>>value;

    if (pos<0 || pos>size)
    {
        cout<<"Enter The Invalid Index ";
    }
    else
    {
        for (int i = size-1; i>=pos; i--)
        {
            array[i+1]=array[i];
        }

        //array[size]=array[value];
        array[pos]=value;
    }

    cout<< "After Insertation Array"<<endl;
    PrintArray(array,size+1);
    return 0;
}

```

DELETION

```
#include <bits/stdc++.h>
using namespace std;

void PrintArray(int array[],int size){
    for(int i=0; i<size;i++){
        cout<<array[i]<<" ";
    }
    cout<< endl;
}

int main() {
    int array[50];
    int size;
    cout<<"Please Enter The Size : ";
    cin>>size;

    cout<<"Please Enter The Element of Array : ";

    for(int i=0; i<size;i++){

        cin>>array[i];
    }
    cout<< "Given Array : ";
    PrintArray(array,size);

    int pos,value;
    cout<<"Please Enter The Position : ";
    cin>>pos;

    if (pos<0 || pos>size-1)
    {
        cout<<"Enter The Invalid Index ";
        return 0;
    }

    if (pos==size-1)
    {
```

```

        size--;
    }
    else
    {
        for (int i = pos+1; i<size; i++)
        {
            array[i-1]=array[i];
        }
        size--;
    }

    cout<< "After Deletion Array : ";
    PrintArray(array,size);
    return 0;
}

```

LINEAR SEARCH

```

#include <bits/stdc++.h>
using namespace std;

int main() {

    int size;
    cout<<"Please Enter The Size of Array : ";
    cin>>size;

    int array[size];

    cout<<"Please Enter The Value of Array : "<<endl;
    for (int i=0; i<size; i++)
    {
        cin>>array[i];
    }

    char c;
    cout<< " Do YOU Want To Search (Y/N) ";
    cin>>c;

    while (toupper(c)=='Y'){

```

```

int cheakValue;
cout<<"Please Enter the Value you want to Search: ";
cin>>cheakValue;

int flag=0;

for (int i=0; i<size; i++)
{
    if(array[i]==cheakValue)
    {
        flag=1;
        cout<<"INDEX NO : "<< i << " Position : "<< i+1 <<endl;
    }
}
if( flag==0){
    cout<<" Value Not Fount "<<endl;
}

cout<<"Do you want to continue the Search:(Y/N) ";
cin>>c;

}

return 0;
}

```

BUBBLE SORT :

```

#include <bits/stdc++.h>
using namespace std;

void PrintArray(int array [],int size){

    for(int i=0; i<size; i++){
        cout<< array[i]<<" ";
    }
    cout<<endl;
}

```

```
int main() {

    int size;
    cout<<"Please Enter Your Array Size : "<<endl;
    cin>>size;

    int array[size];

    cout<<"Please Enter Your Array Value : "<<endl;
    for (int i=0; i<size; i++){
        cin>>array[i];
    }

    cout << "Before sort : ";
    PrintArray(array,size);
    cout<<endl;

    for(int i=1; i<size; i++)
    {
        int flag= 0;
        cout<<"iteration No : "<< i <<endl;
        for(int j=0; j<size-i; j++)
        {
            if (array[j]>array[j+1])
            {
                swap(array[j],array[j+1]);
                flag = 1;
            }
            PrintArray(array,size);
        }
        cout<<endl;
        if(flag == 0) break;
    }

    cout << "After sort !";
    PrintArray(array,size);
    cout<<endl;

    return 0;
}
```

INSERTION SORT

```
#include <bits/stdc++.h>
using namespace std;

void PrintArray(int array [],int size){

    for(int i=0; i<size; i++){
        cout<< array[i]<<" ";
    }
    cout<<endl;
}

int main() {

    int size;
    cout<<"Please Enter Your Array Size : "<<endl;
    cin>>size;

    int array[size];

    cout<<"Please Enter Your Array Value : "<<endl;
    for (int i=0; i<size; i++){
        cin>>array[i];
    }

    cout << "Before sort : ";
    PrintArray(array,size);
    cout<<endl;

    for(int i=1; i<size; i++)
    {
        int key= array[i];
        cout<<endl<<"i : "<< i <<" key : "<< key <<endl;
        int j = i-1;

        while (array[j]>key && j>=0)

        {
            array[j+1]=array[j];
            PrintArray(array,size);
```

```
        j--;  
    }  
    array[j+1]=key;  
    PrintArray(array,size);  
  
}  
  
cout <<endl<< "After sort !";  
PrintArray(array,size);  
cout<<endl;  
  
return 0;  
}
```