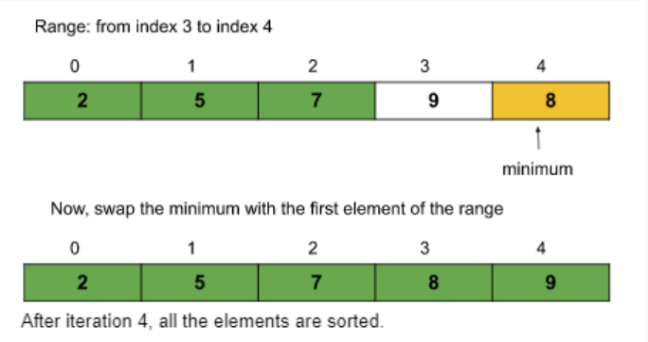
SORTING

1) Selection sort

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

void selectionsort(int arr[],int n){
   for(int i=0;i<n-1;i++){
      int mini=i;
      for(int j=i+1;j<n;j++){
         if(arr[j]<arr[mini])
         mini=j;
      }
      int temp=arr[mini];
      arr[mini]=arr[i];
      arr[i]=temp;
   }
   cout<<"\nAfter selection sort : ";
   for(int i=0;i<n;i++){
      cout<<arr[i]<<" ";
   }
}

int main(){
   int arr[]={1,4,3,2,5};
   int n= sizeof(arr)/sizeof(arr[0]);
   cout<<"Before selection sort : ";
   for(int i=0;i<n;i++){
      cout<<arr[i]<<" ";
   }
   selectionsort(arr,n);
   return 0;
}
```

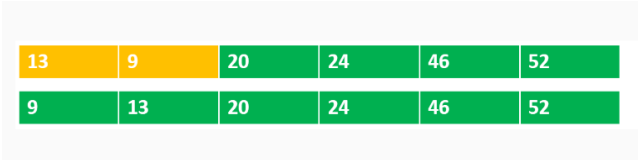


Output
Before selection sort : 1 4 3 2 5
After selection sort : 1 2 3 4 5

2) Bubble sort

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

void bubblesort(int arr[],int n){
   for(int i=n-1;i>=0;i--){
      for(int j=0;j<=i-1;j++){
         if(arr[j]>arr[j+1]){
            int temp=arr[j+1];
            arr[j+1]=arr[j];
            arr[j]=temp;
         }
      }
   }
```



```
    cout<<"\nAfter sorting : ";
    for(int i=0;i<n;i++){
        cout<<arr[i]<<" ";
    }
}

int main(){
    int arr[]={1,2,4,3,6,1};
    int n = sizeof(arr)/sizeof(arr[0]);
    cout<<"Before sorting : ";
    for(int i=0;i<n;i++){
        cout<<arr[i]<<" ";
    }
    bubblesort(arr,n);
    return 0;
}
```

Output

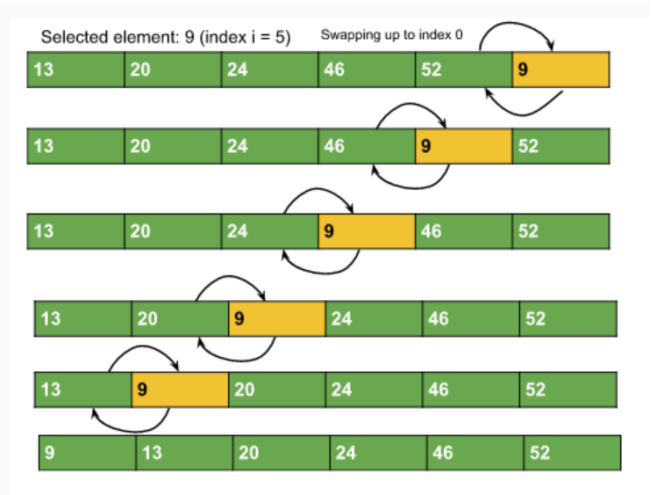
Before sorting : 1 2 4 3 6 1
After sorting : 1 1 2 3 4 6

3) Insertion sort

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

void insertionsort(int arr[],int n){
    for(int i=0;i<=n-1;i++){
        int j=i;
        while(j>0 && arr[j-1]>arr[j]){
            int temp=arr[j-1];
            arr[j-1]=arr[j];
            arr[j]=temp;
            j--;
        }
    }
    cout<<"\nAfter sorting : ";
    for(int i=0;i<n;i++){
        cout<<arr[i]<<" ";
    }
}

int main(){
    int arr[] = {10,3,2,4};
    int n = sizeof(arr)/sizeof(arr[0]);
    cout<<"Before sorting : ";
    for(int i=0;i<n;i++){
        cout<<arr[i]<<" ";
    }
    insertionsort(arr,n);
    return 0;
}
```



Output
Before sorting : 10 3 2 4
After sorting : 2 3 4 10