Insertion Sort :

```
#include<stdio.h>
#include<stdlib.h>
void insertionSort(int arr[], int size){
    int x, j;
    for(int i=1; i<size; i++){
        x = arr[i];
        j = i-1;
        while(arr[j] > x && j > -1){
                arr[j+1] = arr[j];
            j--;
        }
        arr[j+1]=x;
    }
}
int* getArray(int n){
    printf("Enter the elements in array: ");
    int* arr = (int*)malloc(sizeof(int)*n);
    for(int i=0; i<n; i++)
        scanf("%d",&arr[i]);
    printf("Success :)\n");
    return arr;
}
int main(){
    printf("Enter no of elements you want in the array: ");
    int n;
    scanf("%d",&n);
    int* array = getArray(n);
    insertionSort(array, n);
    printf("Sorted Array: \t");
    for(int i=0; i<n; i++)
        printf("%d  ",array[i]);
    printf("\n");
    return 0;
}
```

Output :

```
PS E:\Programming assignments\DS\Sorting>
PS E:\Programming assignments\DS\Sorting> cd "e:\Programming assignments\DS\Sorting\" ; if ($?) { gcc ins
} ; if ($?) { .\insertionSort }
Enter no of elements you want in the array: 10
Enter the elements in array: 8 1 6 9 2 4 5 1 3 7
Success :)
Sorted Array:   1  1  2  3  4  5  6  7  8  9
PS E:\Programming assignments\DS\Sorting> cd "e:\Programming assignments\DS\Sorting\" ; if ($?) { gcc ins
} ; if ($?) { .\insertionSort }
Enter no of elements you want in the array:
  5
Enter the elements in array:
8 6 2 7 3
Success :)
Sorted Array:   2  3  6  7  8
PS E:\Programming assignments\DS\Sorting>
```

Selection Sort :

```
#include<stdio.h>
#include<stdlib.h>

void swap(int *n1, int *n2){
   int temp = *n1;
   *n1 = *n2;
   *n2 = temp;
}


void selectionSort(int arr[], int size){
   int minIndex, i,j;
   for(i=0; i<size; i++){
      minIndex = i;
      for(j=i+1; j<size; j++){
         if(arr[j]<arr[minIndex])
            minIndex = j;
      }
      swap(&arr[i],&arr[minIndex]);
   }
}
```

```
int* getArray(int n){
   printf("Enter the elements in array: ");
   int* arr = (int*)malloc(sizeof(int)*n);
   for(int i=0; i<n; i++)
      scanf("%d",&arr[i]);
   printf("Success :)\n");
   return arr;
}

int main(){
   printf("Enter no of elements you want in the array: ");
   int n;
   scanf("%d",&n);
   int* array = getArray(n);
   selectionSort(array, n);
   printf("Sorted Array: \t");
   for(int i=0; i<n; i++)
      printf("%d  ",array[i]);
   printf("\n");
   return 0;
}
```

Output :

```
PS E:\Programming assignments\DS\Sorting>
PS E:\Programming assignments\DS\Sorting> cd "e:\Programming assignments\DS\Sorting\" ; if ($?) { gcc selectionSort.c -o sel
} ; if ($?) { .\selectionSort }
Enter no of elements you want in the array: 5
Enter the elements in array: 8 2 4 7 3
Success :)
Sorted Array:   2  3  4  7  8
PS E:\Programming assignments\DS\Sorting> cd "e:\Programming assignments\DS\Sorting\" ; if ($?) { gcc selectionSort.c -o sel
} ; if ($?) { .\selectionSort }
Enter no of elements you want in the array: 10
Enter the elements in array: 5 7 2 1 9 3 4 6 10 8
Success :)
Sorted Array:   1  2  3  4  5  6  7  8  9  10
```

Bubble Sort :

```
#include<stdio.h>
#include<stdlib.h>
void swap(int *n1, int *n2){
   int temp = *n1;
   *n1 = *n2;
   *n2 = temp;
}
void bubbleSort(int arr[], int size){
   int flag;
   for(int i=0; i<size-1; i++){
      flag = 0;
      for(int j=0; j<size-1-i; j++){
         if(arr[j]>arr[j+1]){
            swap(&arr[j], &arr[j+1]);
            flag = 1;
         }
      }
      if(flag==0)
         return;
   }
}
```

```
int* getArray(int n){
   printf("Enter the elements in array: ");
   int* arr = (int*)malloc(sizeof(int)*n);
   for(int i=0; i<n; i++)
      scanf("%d",&arr[i]);
   printf("Success :)\n");
   return arr;
}
int main(){
   printf("Enter no of elements you want in
the array: ");
   int n;
   scanf("%d",&n);
   int* array = getArray(n);
   bubbleSort(array, n);
   printf("Sorted Array: \t");
   for(int i=0; i<n; i++)
      printf("%d  ",array[i]);
   printf("\n");
   return 0;
}
```

Output :