

# DATA STRUCTURES

## DAY-12

### 1. Bubble sort

#### Program:

```
#include <stdio.h>

void swap(int *xp, int *yp) {
    int temp = *xp;
    *xp = *yp;
    *yp = temp;
}

void bubbleSort(int arr[], int n) {
    int i, j;
    for (i = 0; i < n-1; i++) {
        for (j = 0; j < n-i-1; j++) {
            if (arr[j] > arr[j+1]) {
                swap(&arr[j], &arr[j+1]);
            }
        }
    }
}

void printArray(int arr[], int size) {
    int i;
    for (i = 0; i < size; i++) {
        printf("%d ", arr[i]);
    }
}
```

```

        printf("\n");
    }

int main() {
    int arr[] = {64, 34, 25, 12, 22, 11, 90};
    int n = sizeof(arr)/sizeof(arr[0]);
    printf("Unsorted array: \n");
    printArray(arr, n);
    bubbleSort(arr, n);
    printf("Sorted array: \n");
    printArray(arr, n);
    return 0;
}

```

### **Output:**

Unsorted array:

64 34 25 12 22 11 90

Sorted array:

11 12 22 25 34 64 90

## **2.Selection Sort**

### **Program:**

```

#include <stdio.h>

void swap (int *xp, int *yp) {
    int temp = *xp;
    *xp = *yp;
    *yp = temp;
}

```

```

}

void selectionSort(int arr[], int n) {
    int i, j, min_idx;

    for (i = 0; i < n-1; i++) {
        min_idx = i;
        for (j = i+1; j < n; j++)
            if (arr[j] < arr[min_idx])
                min_idx = j;
        swap(&arr[min_idx], &arr[i]);
    }
}

void printArray(int arr[], int size) {
    int i;
    for (i = 0; i < size; i++)
        printf("%d ", arr[i]);
    printf("\n");
}

int main () {
    int arr[] = {64, 25, 12, 22, 11};
    int n = sizeof(arr)/sizeof(arr[0]);
    printf("Original array: \n");
    printArray(arr, n);
    selectionSort(arr, n);
    printf("Sorted array: \n");
    printArray(arr, n);
}

```

```
    return 0;  
}
```

**Output:**

Original array:

64 25 12 22 11

Sorted array:

11 12 22 25 64