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