LAB - 2:

BUBBLE SORT:

PROGRAM:

```
//Bubble sort
#include <stdio.h>
void main()
{
   int n, i, j, temp, arr[100];
   printf("\nEnter the number of elements: ");
   scanf("%d",&n);
   for(i=0 ; i<n ; i++)
   {
      printf("\nEnter the element %d of the array: ",i+1);
      scanf("%d",&arr[i]);
   }

   printf("\nUnSorted array: ");
   for(i=0 ; i<n ; i++)
   {
      printf("\n%d", arr[i]);
   }

   for(i=0 ; i<n ; i++)
   {
      for (j=0 ; j<n-i-1 ; j++)
      {
         if(arr[j] > arr[j+1])
         {
            temp = arr[j];
            arr[j] = arr[j+1];
            arr[j+1] = temp;
         }
      }
   }
   printf("\nAfter doing Bubble sort: ");
   printf("\nSorted array: ");
   for(i=0 ; i<n ; i++)
   {
      printf("\n%d", arr[i]);
   }
}
```

OUTPUT:

```
Enter the number of elements: 4

Enter the element 1 of the array: 100

Enter the element 2 of the array: 77

Enter the element 3 of the array: 73

Enter the element 4 of the array: 97

UnSorted array:
100
77
73
97
After doing Bubble sort:
Sorted array:
73
77
97
100

=== Code Exited With Errors ===
```

INSERTION SORT:

PROGRAM:

//Insertion sort
#include<stdio.h>

```
void main()
{
    int arr[100],n,i,j,tmp;
    printf("Enter the number of elements : ");
    scanf("%d",&n);
    for(i=0 ; i<n ; i++)
    {
        printf("Enter the element %d: ",i+1);
        scanf("%d",&arr[i]);
    }
    printf("\nUnsorted array: ");
    for(int i = 0 ; i<n ; i++)
    {
        printf("\n%d",arr[i]);
    }
    for(i = 1 ; i<n ; i++)
    {
        tmp = arr[i];
        j = i-1;
        while(j >= 0 && arr[j] > tmp)
        {
            arr[j+1] = arr[j];
            j--;
        }
        arr[j+1] = tmp;
    }
    printf("\nAfter doing Insertion Sort: ");
    printf("\nSorted array: ");
    for(int i = 0 ; i < n ; i++)
    {
        printf("\n%d",arr[i]);
    }
}
```

OUTPUT:

```
Enter the number of elements : 4
Enter the element 1: 100
Enter the element 2: 77
Enter the element 3: 73
Enter the element 4: 97

Unsorted array:
100
77
73
97
After doing Insertion Sort:
Sorted array:
73
77
97
100

=== Code Exited With Errors ===
```

SELECTION SORT:

PROGRAM:

```
#include <stdio.h>

void main()
{
   int a[100], n, i, j, position, swap;
   printf("Enter the number of elements of the array: ");
   scanf("%d", &n);
```

```
    for(i = 0; i < n; i++)
    {
        printf("Enter the element %d: ", i + 1);
        scanf("%d", &a[i]);
    }
    printf("\nUnsorted array: ");
    for(i = 0; i < n; i++)
    {
        printf("\n%d", a[i]);
    }

    for(i = 0; i < n - 1; i++)
    {
        position = i;
        for(j = i + 1; j < n; j++)
        {
            if(a[position] > a[j])
            {
                position = j;
            }
        }

        if(position != i)
        {
            swap = a[i];
            a[i] = a[position];
            a[position] = swap;
        }
    }
    printf("\nAfter doing Selection Sort: ");
    printf("The sorted array is: ");
    for(i = 0; i < n; i++) {
        printf("\n%d", a[i]);
    }
}
```

OUTPUT:

```
Enter the number of elements of the array: 4
Enter the element 1: 100
Enter the element 2: 77
Enter the element 3: 73
Enter the element 4: 97

Unsorted array:
100
77
73
97
After doing Selection Sort:
The sorted array is:
73
77
97
100

=== Code Exited With Errors ===
```