Exercise 1 *– Write a program to find the highest & lowest element from an integer array. An example would be as follows:*

```
Enter number of elements: 7

Enter data
12 43 7 15 38 -25 10

Elements in the array: 12 43 7 15 38 -25 10
Highest element = 43
Lowest element = -25
```

Program –

```
#include<stdio.h>
int main()
{
     int arr[100],n,i,high,low;
     printf("Enter number of elements: ");
     scanf("%d",&n);
     printf("\nEnter data\n");
     for(i=0;i<n;i++)
     {
          scanf("%d",&arr[i]);
     }
     printf("\nElements in the array:");
     for(int i=0;i<n;i++)
     {
          printf(" %d",arr[i]);
     }
     printf("\n");
     printf("Highest element = ");
     high = arr[0];
     for(int i=0;i<n;i++)
     {
          if(high<=arr[i])
          {
               high = arr[i];
          }
     }
     printf("%d\n",high);
     printf("Lowest element = ");
     low = arr[0];
     for(int i=0;i<n;i++)
     {
          if(low>=arr[i])
          {
```

```
                low = arr[i];
            }
        }
        printf("%d\n",low);
        return 0;
    }
```

Output –

```
Enter number of elements: 7

Enter data
12 43 7 15 38 -25 10

Elements in the array: 12 43 7 15 38 -25 10
Highest element = 43
Lowest element = -25
```

Exercise 2 – **12, 78, -9, 19, 45, 88, 5, 15, -100, 29**

Write a program to sort the above data's in ascending order by using the following algorithm.

i) Bubble Sort

Program –

```
#include<stdio.h>
int main()
{
    int i,j,temp;
    int arr[10] = {12,78,-9,19,45,88,5,15,-100,29};
    for(i=0;i<10-1;i++)
    {
        for(j=0;j<10-i-1;j++)
        {
            if(arr[j]>arr[j+1])
            {
                temp = arr[j];
                arr[j] = arr[j+1];
                arr[j+1] = temp;
            }
        }
    }
    printf("Sorted Array is");
    for(i=0;i<10;i++)
        printf(" %d",arr[i]);
    return 0;
}
```

Output –

```
Sorted Array is -100 -9 5 12 15 19 29 45 78 88
```

ii) Selection Sort

Program –

```
#include<stdio.h>
int main()
{
    int i,j,temp,position;
    int array[10] = {12,78,-9,19,45,88,5,15,-100,29};
    for(i=0;i<(10-1);i++)
    {
        position = i;
        for(j=i+1;j<10;j++)
        {
            if (array[position]>array[j])
            position = j;
        }
        if (position!=i)
        {
            temp = array[i];
            array[i] = array[position];
            array[position] = temp;
        }
     }
     printf("Sorted Array is");
     for(i=0;i<10;i++)
     {
         printf(" %d",array[i]);
     }
     return 0;
}
```

Output –

```
Sorted Array is -100 -9 5 12 15 19 29 45 78 88
```

iii) Insertion Sort

Program –

```
#include<stdio.h>
int main()
{
     int c,d,temp,flag;
     int array[10] = {12,78,-9,19,45,88,5,15,-100,29};
```

```
        for(c=1;c<=10-1;c++)
        {
             temp=array[c];
             for(d=c-1;d>=0;d--)
             {
                 if (array[d]>temp)
                 {
                     array[d+1] = array[d];
                     flag = 1;
                 }
                 else
                 {
                     break;
                 }
             }
             if (flag)
                  array[d+1] = temp;
        }
        printf("Sorted Array is");
        for(c=0;c<10;c++)
        {
             printf(" %d",array[c]);
        }
        return 0;
    }
```

Output –

```
Sorted Array is -100 -9 5 12 15 19 29 45 78 88
```

Exercise 3 *– Write a program to search a number from a set of N numbers. An example would be as follows:*

Test case 1:

```
Enter number of elements: 5
Enter data
2
10
19
5
25

Enter the key element: 19
Element successfully found
```

Test case 2:

```
Enter number of elements: 5
Enter data
2
10
19
5
25

Enter the key element: 50
Element not found
```

Program –

```
#include<stdio.h>
int main()
{
     int arr[1000],flag=0,n,i,search;
     printf("Enter number of elements: ");
     scanf("%d",&n);
     printf("\nEnter data\n");
     for(i=0;i<n;i++)
     {
          scanf("%d",&arr[i]);
     }
     printf("\nEnter the key element: ");
     scanf("%d",&search);
     for(int i=0;i<n;i++)
     {
          if(search==arr[i])
          {
               flag=1;
          }
     }
     if(flag==1)
     {
          printf("Element successfully found");
     }
     else
     {
          printf("Element not found");
     }
     return 0;
}
```

Output –

```
i)   Enter number of elements: 5
     Enter data
     2
     10
     19
     5
     25

     Enter the key element: 19
     Element successfully found
```

ii)
```
Enter number of elements: 5
Enter data
2
10
19
5
25

Enter the key element: 50
Element not found
```