***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.*

1. ***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

1. ***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

1. ***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: Test case 2:*

Enter number of elements: 5 Enter number of elements: 5

Enter data Enter data

2 2

10 10

19 19

5 5

25 25

Enter the key element: 19 Enter the key element: 50

Element successfully found 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 –*

1. Enter number of elements: 5

Enter data

2

10

19

5

25

Enter the key element: 19

Element successfully found

1. Enter number of elements: 5

Enter data

2

10

19

5

25

Enter the key element: 50

Element not found