

SELECTION SORT

Write a program in C to sort the elements of an array in ascending order using SELECTION sort and explain the steps how to perform selection sort

There are two steps 1st step is

a) **Steps 1: find out the minimum value**

Steps 2: interchange between two values

Index Number	0	1	2	3	4
Original Value:	40	30	50	12	10

Find out the minimum value and its location

Min = 40 loc 0

if(min>a[j])

40>30	condition is true then min=30	loc=1	j=1
30>50	condition is false		j=2
30>12	condition is true then min=12	loc=3	j=3
12>10	condition is true then min=10	loc=4	j=4

Change the element

Temp=a[0];	temp=40
a[i]=a[loc];	a[i]=10;
a[loc]=temp	a[loc]=40;

Pass 1:	10	30	50	12	40
Pass 2:	10	12	50	30	40
Pass 3:	10	12	30	50	40
Pass 4:	10	12	30	40	50
Pass 5:	10	12	30	40	50



```
#include<stdio.h>
#include<conio.h>
void main()
{
    int a[5]={40,30,50,12,10};
    int i,j,loc,min,temp,n,k;
    n=5;
    clrscr();
    printf("\n Original Number :-\t ");
    for(i=0;i<n;i++)
        printf("\t%d",a[i]);
    for(i=0;i<n;i++)
    {
        min=a[i];
        loc=i;
        for(j=i+1;j<n;j++)
        {
            if(min>a[j])
            {
                min=a[j];
                loc=j;
            }
        }
        if(loc!=i)
        {
            temp=a[i];
            a[i]=a[loc];
            a[loc]=temp;
        }
    }
}
```



```
printf("\n\n Pass %d\t\t",i+1);
for(k=0;k<n;k++)
    printf("\t%d",a[k]);
}

printf("\n Final Sorting Number :- ");
for(i=0;i<n;i++)
    printf("\t%d",a[i]);
getch();
}
```

- b) Steps 1: Find out the Maximum value**
Steps 2: interchange between two values

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int a[5]={44,11,55,22,33};
    int i,max,n,loc,temp,j,k,loop;
    clrscr();
    n=5;
    printf("\n After sorting ");
    for(i=0;i<n;i++)
        printf("%5d",a[i]);
    for(i=n-1;i>=0;i--)
    {
        max=a[i];
        loc=i;
        for(j=i-1;j>=0;j--)
        {
```



```
        if(max<a[j])
        {
            max=a[j];
            loc=j;
        }
    }
    if(loc!=i)
    {
        temp=a[i];
        a[i]=a[loc];
        a[loc]=temp;
    }
}

printf("\n After sorting ");
for(i=0;i<n;i++)
    printf("%5d",a[i]);

getch();
}
```

