**//PROGRAM FOR BUBBLE SORT.**

#include<stdio.h>

#include<conio.h>

int i,a[1000],size;

void INPUT(int array[],int len);

void BUBBLE(int array[],int len);

void main()

{

clrscr();

printf("\nEnter the size of the array\n\n");

scanf("%d",&size);

INPUT(a,size);//to input value in the array.

BUBBLE(a,size);//to sort array.

getch();

}

void INPUT(int array[],int len)

{

printf("\nEnter the %d numbers\n",len);

for(i=0;i<len;i++)

scanf("%d",&array[i]);

}

void BUBBLE(int array[],int len)

{

int j,t;

for(i=1;i<len;i++)

{

for(j=0;j<len-i;j++)

{

if(array[j]>array[j+1])

{

t=array[j];

array[j]=array[j+1];

array[j+1]=t;

}

}

}

printf("\nThe sorted array is:\n");

for(i=0;i<len;i++)

printf("%d\t",array[i]);

}

**OUTPUT:-**

Enter the size of the array

10

Enter the 10 numbers

33

11

99

77

44

77

66

44

55

22

The sorted array is:

11 22 33 44 44 55 66 77 77 99

**//PROGRAM FOR INSERTION SORT.**

#include<stdio.h>

#include<conio.h>

int i,a[1000],size;

void INPUT(int array[],int len);

void INSERTION(int array[],int len);

void main()

{

clrscr();

printf("\nEnter the size of the array:-\n\n");

scanf("%d",&size);

INPUT(a,size);//to input value in the array.

INSERTION(a,size);//to sort array.

getch();

}

void INPUT(int array[],int len)

{

printf("\nEnter the %d numbers:-\n",len);

for(i=0;i<len;i++)

scanf("%d",&array[i]);

}

void INSERTION(int array[],int len)

{

int j,key;

for(i=1;i<len;i++)

{

key=a[i];

j=i-1;

while((a[j]>key)&&(j>=0))

{

a[j+1]=a[j];

j--;

}

a[j+1]=key;

}

printf("\nThe sorted array is:-x\n");

for(i=0;i<len;i++)

printf("%d\t",array[i]);

}

**OUTPUT:-**

Enter the size of the array:-

5

Enter the 5 numbers:-

44

10

30

22

60

The sorted array is:-

10 22 30 44 60

**//PROGRAM FOR SELECTION SORT.**

#include<stdio.h>

#include<conio.h>

int i,a[1000],size;

void INPUT(int array[],int len);

void SELECTION(int array[],int len);

void main()

{

clrscr();

printf("\nEnter the size of the array\n\n");

scanf("%d",&size);

INPUT(a,size);//to input value in the array.

SELECTION(a,size);//to sort array.

getch();

}

void INPUT(int array[],int len)

{

printf("\nEnter the %d numbers\n",len);

for(i=0;i<len;i++)

scanf("%d",&array[i]);

}

void SELECTION(int array[],int len)

{

int j,t,min,loc;

for(i=0;i<len;i++)

{

min=a[i];

loc=i;

for(j=i+1;j<len;j++)

{

if(array[j]>=min)

{

min=array[j];

loc=j;

}

}

if(loc!=i)

{

t=array[i];

array[i]=array[loc];

array[loc]=t;

}

}

printf("\nThe sorted array is:\n");

for(i=0;i<len;i++)

printf("%d\t",array[i]);

}

**OUTPUT:-**

Enter the size of the array

10

Enter the 10 numbers

44

0

11

22

66

11

99

44

77

88

The sorted array is:

99 88 77 66 44 44 22 11 11 0

//Program for linear search.

#include<stdio.h>

#include<conio.h>

void LINEAR(int a[],int len,int s);

void main()

{

int ar[1000];

int i=1,k,len,search;

char ch;

clrscr();

printf("\t\tWelcome to c program.\n");

printf("To stop press 'n'");

do

{

printf("\nEnter %d number:",i);

scanf("%d",&ar[i]);

scanf("%c",&ch);

i++;

}while(ch!='n');

len=i-1;

printf("Enter the number to search.\t");

scanf("%d",&search);

LINEAR(ar,len,search);

getch();

}

void LINEAR(int a[],int len,int s)

{

int i,k=0,found[1000];

for(i=1;i<len;i++)

{

if(a[i]==s)

{

found[k++]=i;

}

}

if(k==0)

{

printf("Sorry! unsucessful search.");

getch();

exit(0);

}

else

{

printf("Sucessful search.\n");

printf("The position of the elements.\n");

for(i=0;i<k;i++)

printf("%d\t",found[i]);

}

}

## OUTPUT:-

Welcome to c program.

To stop press 'n'

Enter 1 number:66

Enter 2 number:44

Enter 3 number:33

Enter 4 number:90

Enter 5 number:33

Enter 6 number:5

Enter 7 number:33

Enter 8 number:n

Enter the number to search. 33

Sucessful search.

The position of the elements.

3 5 7

## //Program for binary search.

#include<stdio.h>

#include<conio.h>

void BINARY(int value[],int l,int s);

struct ar

{

int value;

int index;

};struct ar a[100];

void main()

{

int i=1,len,search,t,j;

char ch;

clrscr();

printf("\t\tWelcome to c program.\n");

printf("To stop press 'n'.\n");

do

{

printf("Enter %d number:",i);

scanf("%d",&a[i].value);

a[i].index=i;

scanf("%c",&ch);

i++;

}while(ch!='n');

len=i-1;

for(i=1;i<len-1;i++)

{

for(j=1;j<len-i;j++)

{

if(a[j].value>a[j+1].value)

{

t=a[j].value;

a[j].value=a[j+1].value;

a[j+1].value=t;

t=a[j].index;

a[j].index=a[j+1].index;

a[j+1].index=t;

}

}

}

printf("\nEnter the value of search.\t");

scanf("%d",&search);

BINARY(a,len,search);

getch();

}

void BINARY(int value[],int l,int item)

{

int beg=1,end=l,mid,loc=0;

mid=(beg+end)/2;

while(beg<end)

{

mid=(beg+end)/2;

if(item<a[mid].value)

end=mid;

else

beg=mid;

if(a[mid].value==item)

{

loc=mid;

break;

}

}

if(loc==0)

printf("Item not found.");

else

{

printf("Item found.\n");

printf("Position:%d",a[loc].index);

}

}

## OUTPUT:-

Welcome to c program.

To stop press 'n'.

Enter 1 number:20

Enter 2 number:60

Enter 3 number:10

Enter 4 number:0

Enter 5 number:9

Enter 6 number:88

Enter 7 number:n

Enter the value of search. 9

Item found.

Position:5

Welcome to c program.

To stop press 'n'.

Enter 1 number:33

Enter 2 number:77

Enter 3 number:22

Enter 4 number:11

Enter 5 number:77

Enter 6 number:88

Enter 7 number:n

Enter the value of search. 10

Item not found.

## //Program for heap sort.

#include<stdio.h>

#include<conio.h>

void MAX\_HEAPIFY(int a[],int i);

void BUILD\_MAX\_HEAP(int a[]);

int hsize,len;

void main()

{

int a[5000];

int i=1,t;

char ch;

clrscr();

printf("\t\tWelcome to c program.\n");

printf("To stop press 'n'\n");

do

{

printf("Enter %d number:",i);

scanf("%d",&a[i]);

scanf("%c",&ch);

i++;

}while(ch!='n');

len=i-2,hsize=i-2;

printf("Before sorting.\n");

for(i=1;i<=len;i++)

printf("%d\t",a[i]);

BUILD\_MAX\_HEAP(a);

for(i=len;i>=2;i--)

{

t=a[1];

a[1]=a[i];

a[i]=t;

hsize--;

MAX\_HEAPIFY(a,1);

}

printf("\nAfter sorting.\n");

for(i=1;i<=len;i++)

printf("%d\t",a[i]);

getch();

}

void BUILD\_MAX\_HEAP(int a[])

{

int i;

hsize=len;

for(i=len/2;i>=1;i--)

{

MAX\_HEAPIFY(a,i);

}

}

void MAX\_HEAPIFY(int a[],int i)

{

int l,r,largest,t;

l=i\*2;

r=(i\*2)+1;

if(l<=hsize&&a[l]>a[i])

largest=l;

else

largest=i;

if(r<=hsize&&a[r]>a[largest])

largest=r;

if(largest!=i)

{

t=a[i];

a[i]=a[largest];

a[largest]=t;

MAX\_HEAPIFY(a,largest);

}

}

## OUTPUT:-

Welcome to c program.

To stop press 'n'

Enter 1 number:55

Enter 2 number:33

Enter 3 number:8

Enter 4 number:1

Enter 5 number:0

Enter 6 number:8

Enter 7 number:n

Before sorting.

55 33 8 1 0 8

After sorting.

0 1 8 8 33 55