```
// heapsort

#include<stdio.h>
void heapify(int a[],int);
void adjust(int a[],int);
void heapsort(int a[],int);
int main()
{
int i,n,a[25];
printf("\nENTER THE LIMIT::");
scanf("%d",&n);
printf("\nENTER ELEMENTS::");
for(i=0;i<n;i++)
scanf("%d",&a[i]);
heapsort(a,n);
printf("\nSORTED ELEMENTS::");
for(i=0;i<n;i++)
printf("\n%d",a[i]);
}

void heapify(int a[],int n)
{
int k,i,j,item;
for(k=1;k<n;k++)
{
item=a[k];
i=k;
j=(i-1)/2;
while((i>0)&&(item>a[j]))
{
a[i]=a[j];
i=j;
j=(i-1)/2;
}
a[i]=item;
}
}

void adjust(int a[],int n)
{
int i,j,item;
j=0;
item=a[j];
i=(2*j)+1;

while(i<=n-1)
{
if(i+1<=n-1)
if(a[i]<a[i+1])
i++;
if(item<a[i])
{
```

```
a[j]=a[i];
j=i;
i=(2*j)+1;
}
else
break;
}
a[j]=item;
}
void heapsort(int a[],int n)
{
int i,t;
heapify(a,n);
for(i=n-1;i>0;i--)
{
t=a[0];
a[0]=a[i];
a[i]=t;
adjust(a,i);
}
}
```

output:

```
ENTER THE LIMIT::9

ENTER ELEMENTS::3
56
852
21
456
963
3647
1
23

SORTED ELEMENTS::
1
3
21
23
56
456
852
963
3647
```