```
#include<iostream>
using namespace std;
class Heap
{
   int a[50],b[50],n;
   public:
      Heap()
      {
         n=-1;;
      }
      void insheap(int);
      int delheap();
      void display();
      void heapsort();
};
void Heap::insheap(int item)
{
   int i,j;
         n++;
         i=n;
         while(i>0)
         {
                  j=(i-1)/2;
                  if(item<=a[j])
                  {
                           a[i]=item;
                           return ;
                  }
                  a[i]=a[j];
                  i=j;
         }
         a[0]=item;

}
int Heap::delheap()
{
         int left,right,last,i,item;
         item=a[0];
         last=a[n];
         n--;
         i=0;
         left=1;
         right=2;
         while(right<=n)
```

```
	{
		if(last>=a[left] && last >=a[right])
		{
			a[i]=last;
			return item;
		}
		if(a[right]<=a[left])
		{
			a[i]=a[left];
			i=left;
		}
		else
		{
		    a[i]=a[right];
			i=right;
		}
		left=(2*i)+1;
		right=left+1;
	}
	if(left==n)
	{
		if(last<a[left])
		{
			a[i]=a[left];
			i=left;
		}
	}
	a[i]=last;
	return item;
}
void Heap::display()
{
	cout<<"\n Elements in heaps are:\n";
	for(int i=0;i<=n;i++)
	{
		cout<<" "<<a[i];
	}
}
void Heap::heapsort()
{
	int item,ch,temp,j=0;

	do
	{
```

```
                cout<<"\n enter item to insert:";
                cin>>item;
                insheap(item);
                cout<<"\n do you want to insert again ? press 1 for Yes and 0 for NO";
                cin>>ch;
        }while(ch!=0);
        cout<<"\n before sorting\n";
        for(int i=0;i<=n;i++)
        {
                cout<<" "<<a[i];
        }
        temp=n;
        while(n!=-1)
        {
                b[j]=delheap();
                j++;
        }
        cout<<"\n after sorting\n";
        for(int i=temp;i>=0;i--)
        {
                cout<<" "<<b[i];
        }
}
int main()
{
   Heap h=Heap();
   h.heapsort();
   return 0;
}
```