

Name: Om Chandrakant Bhavsar

Class: SE-A

Roll No: COSA75

Practical No. 10

```
#include<iostream>
using namespace std;

class hp
{
    int heap[20],heap1[20],x,n1,i;
public:
    hp()
    { heap[0]=0; heap1[0]=0;
    }
    void getdata();
    void insert1(int heap[],int);
    void upadjust1(int heap[],int);
    void insert2(int heap1[],int);
    void upadjust2(int heap1[],int);
    void minmax();
};

void hp::getdata()
{
    cout<<"\n enter the no. of students";
    cin>>n1;
    cout<<"\n enter the marks";
    for(i=0;i<n1;i++)
    {   cin>>x;
        insert1(heap,x);
        insert2(heap1,x);
    }
}

void hp::insert1(int heap[20],int x)
{
    int n;
    n=heap[0];
    heap[n+1]=x;
    heap[0]=n+1;

    upadjust1(heap,n+1);
}

void hp::upadjust1(int heap[20],int i)
{
    int temp;
    while(i>1&&heap[i]>heap[i/2])
    {
```

```

        temp=heap[i];
        heap[i]=heap[i/2];
        heap[i/2]=temp;
        i=i/2;
    }
}
void hp::insert2(int heap1[20],int x)
{
    int n;
    n=heap1[0];
    heap1[n+1]=x;
    heap1[0]=n+1;

    upadjust2(heap1,n+1);
}
void hp::upadjust2(int heap1[20],int i)
{
    int temp1;
    while(i>1&&heap1[i]<heap1[i/2])
    {
        temp1=heap1[i];
        heap1[i]=heap1[i/2];
        heap1[i/2]=temp1;
        i=i/2;
    }
}
void hp::minmax()
{
    cout<<"\n max marks"<<heap[1];
    cout<<"\n";
    for(i=1;i<=n1;i++)
    {   cout<<"\n"<<heap[i];   }
    cout<<"\n min marks"<<heap1[1];
    cout<<"\n";
    for(i=1;i<=n1;i++)
    {   cout<<"\n"<<heap1[i];   }
}
int main()
{
    hp h;
    h.getdata();
    h.minmax();
    return 0;
}

```

Output:

enter the no. of students 5

enter the marks23

34

45

56
67

max marks67

67
56
34
23
45

min marks23

23
34
45
56
67s