#include<iostream>

using namespace std;

# define max 20

class stud

{

int mks[max];

public:

stud()

{

for(int i=0;i<max;i++)

mks[i]=0;

}

void insertheap(int tot);

void displayheap(int tot);

void showmax(int tot);

void showmin();

};

void stud::insertheap(int tot)

{

for(int i=1;i<=tot;i++)

{

cout<<"Enter marks:";

cin>>mks[i];

int j=i;

int par=j/2;

while(mks[j]<=mks[par] && j!=0)

{

int tmp = mks[j];

mks[j]=mks[par];

mks[par]=tmp;

j=par;

par=j/2;

}

}

}

void stud::displayheap(int tot)

{

int i=1,space=6;

cout<<endl;

while(i<=tot)

{

if(i==1 || i==2 || i==4 || i==8 || i==16)

{

cout<<endl<<endl;

for(int j=0;j<space;j++)

cout<<" ";

space-=2;

}

cout<<" "<<mks[i];i++;

}

}

void stud::showmax(int tot)

{

int max1=mks[1];

for(int i=2;i<=tot;i++)

{

if(max1<mks[i])

max1= mks[i];

}

cout<<"Max marks:"<<max1;

}

void stud::showmin()

{

cout<<"Min marks:"<<mks[1];

}

int main()

{

int ch,cont,total,tmp;

int n;

stud s1;

do

{

cout<<endl<<"Menu";

cout<<endl<<"1.Read marks of the student ";

cout<<endl<<"2.Display Min heap";

cout<<endl<<"3.Find Max Marks";

cout<<endl<<"4.Find Min Marks";

cout<<endl<<"Enter Choice:";

cin>>ch;

switch(ch)

{

case 1:

cout<<"How many students:";

cin>>total;

s1.insertheap(total);

break;

case 2:

s1.displayheap(total);

break;

case 3: s1.showmax(total);

break;

case 4:

s1.showmin();

break;

}

cout<<endl<<"Do u want to continue?(1 for continue)";

cin>>cont;

}while(cont==1);

return 0;

}