Assignment No :10

```cpp
#include<iostream>
#include<math.h>
using namespace std;
# define max1 20
class stud
{
   public:
   int marks[max1], total;
   stud()
   {
      for(int i=0;i<max1;i++)
        marks[i]=0;
   }
   void createHeap();
   void displayHeap();
   void showmax();
   void showmin();
};

void stud::createHeap()
{
    int i,j,par,temp,M;
    cout<<"\n Enter How many Stu : ";
    cin>>total;
    for(i=0;i<total;i++)
    {
       cout<<"\n Enter Marks : ";
       cin>>marks[i];
       M=marks[i];
       j=i;
       par=floor((j-1)/2);
       while(marks[j] < marks[par] && j!=0)
       {
          temp=marks[j];
          marks[j]=marks[par];
          marks[par]=temp;
          j=par;
          par=floor((j-1)/2);
       }
       cout<<"\n \n Current Heap : After Inserting : " <<M<<" is : \n ";
       displayHeap();
    }
}
void stud::displayHeap()
```

```cpp
{
    int i=0,space=6;
    cout<<endl;
    while(i<total)
    {
        if(i==0 || i==1 || i==3 || i==7 || i==15)
        {
            cout<<endl<<endl;
            for(int j=0;j<space;j++)
                cout<<" ";
                space-=2;
        }
        cout<<" "<<marks[i];i++;
    }
}
void stud::showmin()
{
    cout<<marks[0];
}
void stud::showmax()
{
    int max,i;
    max=marks[0];
    for(i=1;i<total;i++)
    {
        if(max < marks[i])
        max=marks[i];
    }
    cout<<max;
}
int main()
{
    stud s1;
    int ch, ans;
    do
    {
        cout<<"\n 1. Insert Marks ";
        cout<<"\n 2. Display Marks ";
        cout<<"\n 3. Show Max Marks ";
        cout<<"\n 4. Show Min Marks ";
        cout<<"\n\n Enter Your Choice : ";
        cin>>ch;
        switch(ch)
        {
            case 1:
```

```cpp
                s1.createHeap();
                break;
            case 2:
                s1.displayHeap();
                break;
            case 3: s1.showmax();
                break;
            case 4: s1.showmin();
                break;
        }
        cout<<" \n Do u want to continue : (1 for continue )";
        cin>>ans;
    }
    while(ans==1);
    return 0;
}
```

```
student@TAEComp-01:~$ cd Desktop
student@TAEComp-01:~/Desktop$ cd Nikita
student@TAEComp-01:~/Desktop/Nikita$ g++ Ass10.cpp
student@TAEComp-01:~/Desktop/Nikita$ ./a.out

1. Insert Marks
2. Display Marks
3. Show Max Marks
4. Show Min Marks

Enter Your Choice : 1

Enter How many Stu : 6

Enter Marks : 50


Current Heap : After Inserting : 50 is :


      50

    0 0

  0 0 0
Enter Marks : 40


Current Heap : After Inserting : 40 is :


      40

    50 0

  0 0 0
Enter Marks : 30


Current Heap : After Inserting : 30 is :
```

```
        30

     50 40

   0 0 0
Enter Marks : 20


Current Heap : After Inserting : 20 is :



        20

     30 40

   50 0 0
Enter Marks : 10


Current Heap : After Inserting : 10 is :



        10

     20 40

   50 30 0
Enter Marks : 70


Current Heap : After Inserting : 70 is :



        10

     20 40

   50 30 70
Do u want to continue : (1 for continue )1
```

```
1. Insert Marks
2. Display Marks
3. Show Max Marks
4. Show Min Marks

Enter Your Choice : 2


        10

     20 40

  50 30 70
Do u want to continue : (1 for continue )1

1. Insert Marks
2. Display Marks
3. Show Max Marks
4. Show Min Marks

Enter Your Choice : 3
70
Do u want to continue : (1 for continue )1

1. Insert Marks
2. Display Marks
3. Show Max Marks
4. Show Min Marks

Enter Your Choice : 4
10
Do u want to continue : (1 for continue )2
student@TAEComp-01:~/Desktop/Nikita$
```