**EXPERIMENT 11**

**INPUT:-**

#include<iostream>

using namespace std;

class Heap {

int n;

int \*minheap, \*maxheap;

public:

void get();

void displayMin() { cout << "Minimum marks are : " << minheap[0] << endl; }

void displayMax() { cout << "Maximum marks are : " << maxheap[0] << endl; }

void upAdjust(bool isMaxHeap, int index);

};

void Heap::get() {

cout << "Enter number of students." << endl;

cin >> n;

int k;

minheap = new int[n];

maxheap = new int[n];

cout << "Enter marks of students." << endl;

for (int i = 0; i < n; i++) {

cin >> k;

minheap[i] = k;

upAdjust(false, i);

maxheap[i] = k;

upAdjust(true, i);

}

}

void Heap::upAdjust(bool isMaxHeap, int index) {

int temp;

if (isMaxHeap) {

while (index > 0 && maxheap[(index - 1) / 2] < maxheap[index]) {

temp = maxheap[index];

maxheap[index] = maxheap[(index - 1) / 2];

maxheap[(index - 1) / 2] = temp;

index = (index - 1) / 2;

}

} else {

while (index > 0 && minheap[(index - 1) / 2] > minheap[index]) {

temp = minheap[index];

minheap[index] = minheap[(index - 1) / 2];

minheap[(index - 1) / 2] = temp;

index = (index - 1) / 2;

}

}

}

int main() {

Heap H;

H.get();

H.displayMin();

H.displayMax();

return 0;

}

**OUTPUT:-**

Enter number of students.

8

Enter marks of students.

99

85

77

90

35

25

10

15

Minimum marks are : 10

Maximum marks are : 99

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Process exited after 79.37 seconds with return value 0

Press any key to continue . . .