**Code:**

#include <bits/stdc++.h>

using namespace std;

void heapify(vector<int> &v, int n, int i)

{

int maxIdx = i;

int leftIdx = 2 \* i + 1;

if (leftIdx < n and v[leftIdx] > v[maxIdx]) maxIdx = leftIdx;

int rightIdx = 2 \* i + 2;

if (rightIdx < n and v[rightIdx] > v[maxIdx]) maxIdx = rightIdx;

if (maxIdx != i)

{

swap(v[i], v[maxIdx]);

heapify(v, n, maxIdx);

}

}

int main()

{

auto start = chrono::steady\_clock::now();

int n;

cout<<"Enter the number of elements: ";

cin>>n;

vector<int> v(n);

cout<<"Enter the elements: ";

for(int i=0; i < n; i++) cin>>v[i];

for (int i = n - 1; i >= 0; i--) heapify(v, n, i);

int heapsize = v.size();

while (heapsize > 1)

{

swap(v[0], v[heapsize - 1]);

heapsize--;

heapify(v, heapsize, 0);

}

cout<<"Sorted elements after Heap sort: "<<endl;

for (int i = 0; i < v.size(); i++) cout << v[i] << " ";

cout << endl;

auto end = chrono::steady\_clock::now();

auto diff = end - start;

cout <<"Execution time: "<< chrono::duration <double, milli> (diff).count() << " ms" << endl;

return 0;

}

**Output:**

