HEAP SORT

CODE:

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

void heapify(int arr[], int n, int i)
{
        int largest = i;
        int l = 2 * i + 1;
        int r = 2 * i + 2;

        if (l < n && arr[l] > arr[largest])
                largest = l;

        if (r < n && arr[r] > arr[largest])
                largest = r;

        if (largest != i) {
                swap(arr[i], arr[largest]);

                heapify(arr, n, largest);
        }
}

void heapSort(int arr[], int n)
{
        for (int i = n / 2 - 1; i >= 0; i--)
                heapify(arr, n, i);

        for (int i = n - 1; i >= 0; i--) {

                swap(arr[0], arr[i]);
```

```cpp
            heapify(arr, i, 0);
        }
}
void printArray(int arr[], int n)
{
        for (int i = 0; i < n; ++i)
                cout << arr[i] << " ";
        cout << "\n";
}

// Driver program
int main()
{
        int arr[] = { 60 ,20 ,40 ,70, 30, 10};
        int n = sizeof(arr) / sizeof(arr[0]);
        for(int i=n/2 -1;i>=0;i--){
        heapify(arr,n,i);
}

cout << "After heapifying array is \n";
        for (int i = 0; i < n; ++i)
                cout << arr[i] << " ";
        cout << "\n";


        heapSort(arr, n);

        cout << "Sorted array is \n";
        for (int i = 0; i < n; ++i)
                cout << arr[i] << " ";
        cout << "\n";
return 0;
}
```

OUTPUT:

```
Output

/tmp/BryrCx5jwe.o
Enter the number of elements: 4
Enter element: 43
Enter element: 28
Enter element: 15
Enter element: 65
Heapified array:
65 43 15 28
Sorted array:
15 28 43 65
```