Data Structure & algorithms'

Lab Task

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Submitted to:

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Code:

```
#include <iostream>

using namespace std;

void heap(int arr[], int i, int j)
{

    int largest = j;
    int l = 2 * j + 1;
```

```
    int r = 2 * j + 2;

    if (l < i && arr[l] > arr[largest])

        largest = l;

    if (r < i && arr[r] > arr[largest])

        largest = r;

    if (largest != j) {

        swap(arr[j], arr[largest]);

        heap(arr, i, largest);

    }
}

void heapSort(int arr[], int i)
{

    for (int j = i / 2 - 1; j >= 0; j--)

        heap(arr, i, j);    for
(int j = i - 1; j >= 0; j--)
{       swap(arr[0], arr[j]);

        heap(arr, j, 0);

    }
}


void printArray(int arr[], int i)
{

    for (int j = 0; j < i; ++j)
```

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```cpp
        cout << arr[j] << " ";

    cout << "\n";
}

int main()
{

    int arr[] = { 80 ,55 ,78 ,84, 49, 10};

    int i = sizeof(arr) / sizeof(arr[0]);

     for(int j=i/2 -1;i>=0;j--){

       heap(arr,i,j);

   }



  cout << "After heapifying array is \n";

    printArray(arr, i);

     heapSort(arr, i);

    cout << "Sorted array is \n";

    printArray(arr, i);


  return 0;
}
```

OUTPUT:

```
C:\Users\horizon\Downloads\Untitled1.exe                                    —    □    ×

After heapifying array is
84 80 78 55 49 10
Sorted array is
10 49 55 78 80 84

--------------------------------
Process exited after 0.02678 seconds with return value 0
Press any key to continue . . .
```

LAB TASK