Heapsort Algorithm

```
Heapsort(arr)
      MinHeap(arr)
      for (int i = n - 1; i >= 0; i--) {
        swap(&arr[0], &arr[i]);
        heapsize--;
        minHeapify(arr,0);
      }
```

Heap Sort Code in C++

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

void heapify(int arr[], int n, int i) {
  int min = i;
  int leftChild = 2 * i + 1;
  int rightChild = 2 * i + 2;

  if (leftChild < n && arr[leftChild] < arr[min])
    min = leftChild;

  if (rightChild < n && arr[rightChild] < arr[min])
    min = rightChild;
```

```
  if (min != i) {
    swap(arr[i], arr[min]);
    heapify(arr, n, min);
  }
}
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]);
    heapify(arr, i, 0);
  }
}
void display(int arr[], int n) {
  for (int i = 0; i < n; ++i)
    cout << arr[i] << " ";
  cout << "\n";
}
int main() {
  int arr[] = {11, 34, 9, 5, 16, 10};
  int n = sizeof(arr) / sizeof(arr[0]);
  cout << "Original array:\n";
  display(arr, n);
  heapSort(arr, n);

  cout << "Sorted array:\n";
  display(arr, n);
}
```