



```

1 // Objective: Program for heap sort
2 #include <stdio.h>
3
4 void swap(int *a, int *b)
5 {
6     int temp = *a;
7     *a = *b;
8     *b = temp;
9 }
10
11 void heapify(int arr[], int N, int i)
12 {
13     int largest = i;
14     int left = 2 * i + 1;
15     int right = 2 * i + 2;
16
17     if (left < N && arr[left] > arr[largest])
18         largest = left;
19
20     if (right < N && arr[right] > arr[largest])
21         largest = right;
22
23     if (largest != i)
24     {
25         swap(&arr[i], &arr[largest]);
26         heapify(arr, N, largest);
27     }
28 }
29
30 void heapSort(int arr[], int N)
31 {
32     for (int i = N / 2 - 1; i >= 0; i--)
33         heapify(arr, N, i);
34
35     for (int i = N - 1; i >= 0; i--)
36     {
37         swap(&arr[0], &arr[i]);
38         heapify(arr, i, 0);
39     }
40 }
41
42 void printArray(int arr[], int N)
43 {
44     for (int i = 0; i < N; i++)
45         printf("%d ", arr[i]);
46     printf("\n");
47 }
48
49 int main()
50 {
51     int arr[] = {12, 11, 13, 5, 6, 7};
52     int N = sizeof(arr) / sizeof(arr[0]);
53
54     heapSort(arr, N);
55
56     printf("Sorted array is\n");
57     printArray(arr, N);
58
59     return 0;
60 }
61
62 // Output :
63 // Sorted array is
64 // 5 6 7 11 12 13

```