

Inplace Heap Sort

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Given an integer array of size N. Sort this array (in decreasing order) using heap sort.

Note: Space complexity should be $O(1)$.

Input Format:

The first line of input contains an integer, that denotes the value of the size of the array or N.

The following line contains N space separated integers, that denote the value of the elements of the array.

Output Format :

The first and only line of output contains array elements after sorting. The elements of the array in the output are separated by single space.

Constraints :

$1 \leq n \leq 10^6$

Time Limit: 1 sec

Sample Input 1:

6

2 6 8 5 4 3

Sample Output 1:

8 6 5 4 3 2