

# Heap-Sort Algorithm

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A - Heap-Sort Algorithm build on complete binary tree and rely on this all required algorithms :

**Heapify:** Ensures that a subtree of the heap satisfies the max-heap property.

**Build-Heap:** Converts an array into a max-heap.

**Heap-Sort:** Extracts the maximum element recursively and put the element in true position .

B- Analyzing of using algorithms :

**Heapify Complexity:**

Time complexity:  $O(n \log n)$

**Build-Heap Complexity:**

Time complexity:  $O(n)$ .

**Heap-Sort Complexity:**

Time complexity:  $O(n \log n)$ .