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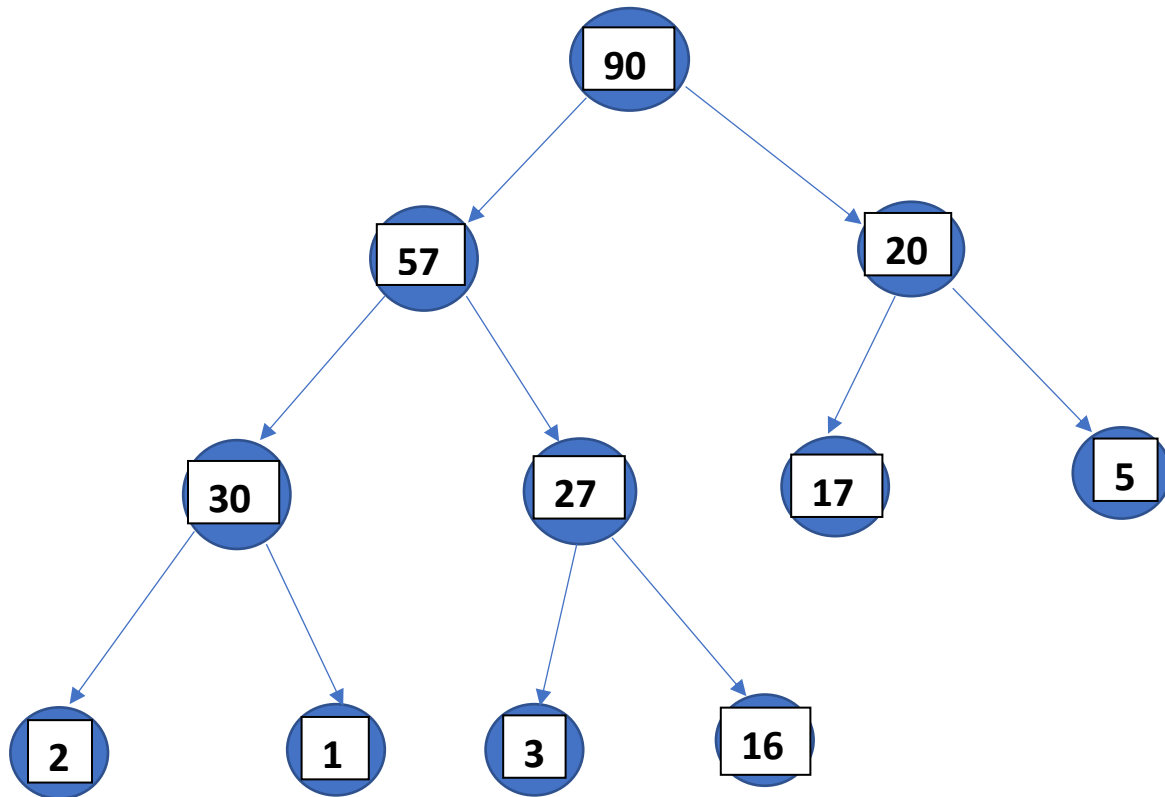
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## Lab 08 : Heap Data Structure

Terminal output :

```
Output Clear
/tmp/1EFuX04aQj.o
Enter the size of the array: 11
Enter elements
1
16
5
30
27
17
20
2
57
3
90
Input array
1 16 5 30 27 17 20 2 57 3 90
Sorted array
1 2 3 5 16 17 20 27 30 57 90
|
```

Sample Max-Heap :



Git-Hub repository link :

[https://github.com/ChethmiNayanathara/Week\\_08/blob/2ebf7af8b2a27a5720db6488beee2a37492ea470/Week\\_08.cpp](https://github.com/ChethmiNayanathara/Week_08/blob/2ebf7af8b2a27a5720db6488beee2a37492ea470/Week_08.cpp)

Time complexity of heap sort :

- The time complexity of the heap sort algorithm can be analyzed based on two components.
- The heapify operation has a time complexity of  $O(\log n)$  and the build heap operation has  $O(n \log n)$  time complexity.
- When considering both the algorithms, the heap sort in total a time complexity of  $O(n \log n)$ .
- This time complexity is valid for all best, average and worst cases.