You need a calculator!

What is an algorithm?

Why we need to study algorithm?

What is time complexity? What is memory complexity?

Order of Growth table/big O θ Ω

Selection/Insertion sort

Quick sort/ **partition** / quick **select**

Merge sort

BST

In-order traversal

Floor/ceiling/insert/delete(Hibbard)

Samples:

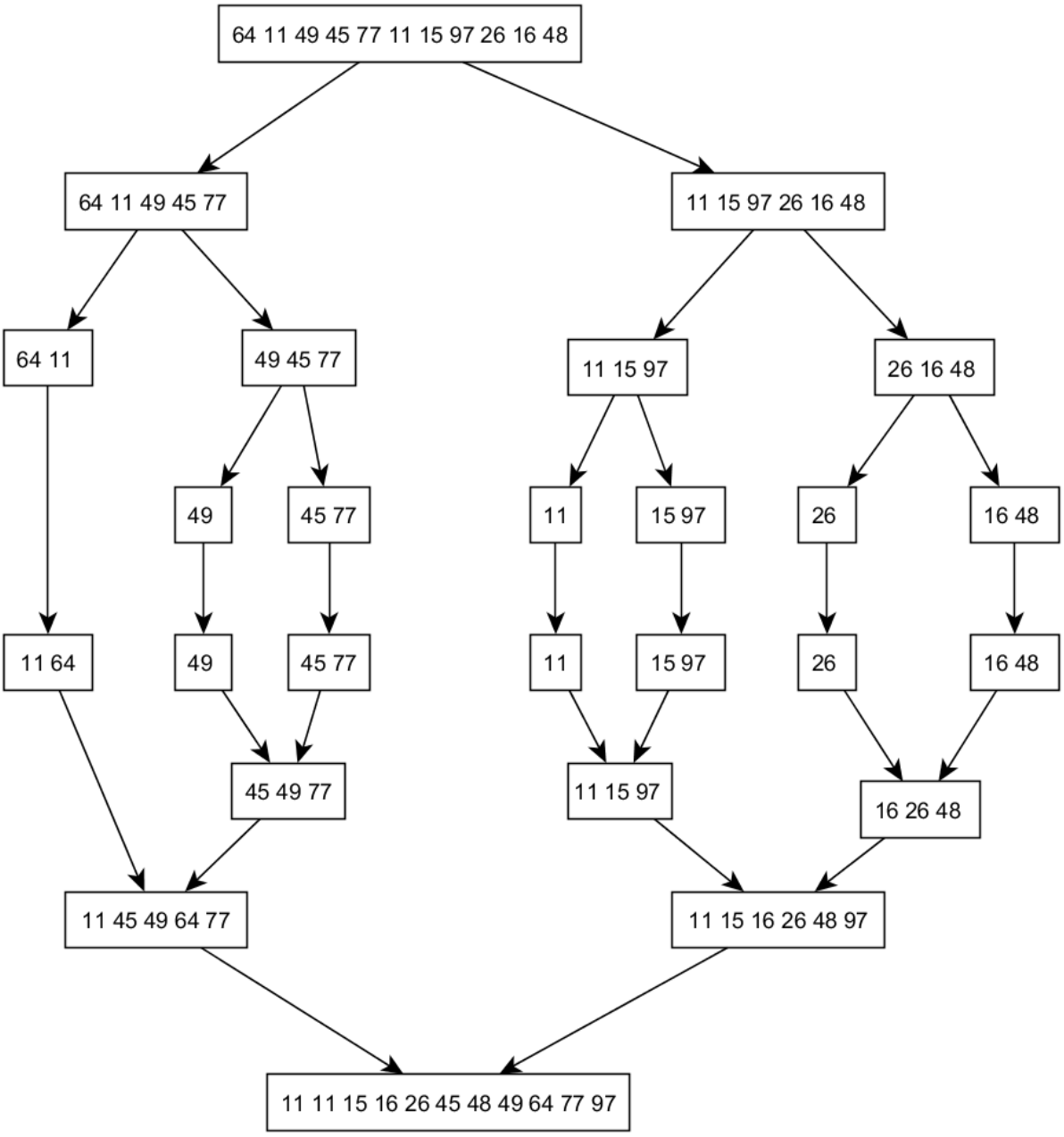
$5N^3 + 20N^2 + 10N + 100$ is $\theta(N^3)$ T or F

When analyzing an algorithm we created, we found that the main operation of our algorithm takes 2ms (milliseconds). This 'main operation' of our algorithm is what is repeated. Our algorithm is $O(N)$ and $\Omega(logN)$ How long will our algorithm take for the following dataset sizes?

Size of dataset	**log(n)**	**Worst case scenario**	**Best case scenario**
50	5.64		
1000	6.65		

Using the following dataset, please sort it using merge sort. **Show all your work.**

64 11 49 45 77 11 15 97 26 16 48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