

## In21-S2-CS2023 – Data Structures and Algorithms

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### Learning outcomes

#### [Learning Outcomes](#) for the Week:

After successfully studying contents covered in this lecture, students should be able to,

- explain and develop recursive algorithms
- explain the divide & conquer algorithm design technique
- explain the merge sort algorithm

#### Topics Covered in Class:

- Recursion
- Divide & Conquer Approach
- Merge Sort
- Analyzing Merge Algorithm

#### Reading Assignments:

- Recursion and Divide & Conquer Approaches and Merge Sort: Section 2.3.1
- Divide & Conquer & Recurrences: Chapter 4: pages 65 – 74

#### Self Studying:

- Analyze the time complexity of Merge Algorithm
- Develop an alternative merge algorithm that does not require additional arrays (an algorithm with  $O(1)$  space complexity) and analyze the time complexity of that algorithm.

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