## Data Structure | Sorting Algorithms| DSA Full Course

- What is the Merge sort algorithm?
- The Merge sort algorithm is a divide and conquer algorithm which sorts an array or list by dividing it into two halves, sorting them separately and then merging them back together.
- What is the main component of the Merge sort algorithm?
- The main component of the Merge sort algorithm is the merge function. It takes two subarrays and merges them into a sorted array.
- What is the logic of the merge function?
- The logic of the merge function is as follows:
  1. Initially, we set two pointers i and j to the beginning of the merged array.
  2. Compare the values of a[i] and a[i] of a[i] is less than or equal to a[j], then put a[i] in the merged array and increment i. Otherwise, put a[j] in the merged array and increment j.
  - 3 Repeatistep 2 untibug lace less than or equal to mid and j less than or equal to upper bound.

4. If j is greater than the upper bound, then put all the remaining elements of the second subarray into the merged array.

5. If i is greater than the mid, then put all the remaining elements of the first subarray into the merged array.

- What is the time complexity of Merge sort?
- The time complexity of Merge sort is O(nlogn) in both the worst and best cases.
- What is merge sort?
- Merge sort is a sorting algorithm where the given list is divided into two halves recursively until one or zero elements are left in the sublists. Then, the sorted sublists are merged to form a new sorted list. This process is repeated until the entire list is sorted.