MERGE SORT

MergeSort is a Divide and Conquer algorithm.
It divides input array in two halves,
calls itself for the two halves
and then merges the two sorted halves.

Two functions are involved in this algorithm

The merge() function is used for merging
two halves.

The Mergesort() function recursively calls itself
to divide the array till size becomes one.

l = left index   r = right index

| 38 | 27 | 43 | 3 | 9 | 82 | 10 |

Is left index smaller than right index? Yes, so we divide the array into 2 parts:

| 38 | 27 | 43 | 3 | | 9 | 82 | 10 |

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| 38 | 27 | | 43 | 3 | | 9 | 82 | | 10 |

| 38 | | 27 | 43 | | 3 | | 9 | | 82 |

After dividing the array into smallest units merging starts, based on comparision of elements.

| 27 | 38 | | 3 | 43 | | 9 | 82 | | 10 |

| 3 | 27 | 38 | 43 | | 9 | 10 | 82 |

| 3 | 9 | 10 | 27 | 38 | 43 | 82 |