

## \* Merge Sort vs Quick Sort:

### Merge Sort

⇒ It is an external algorithm and based on divide and Conquer strategy

⇒ It uses additional storage for sorting.

⇒ In this list is partitioned into 2 halves.

⇒ Worst and average case has same complexities  $O(n \log n)$

⇒ It work well on any type of data sets irrespective of its size

⇒ It is not in place because it requires additional memory space to store the auxiliary arrays.

⇒ It is external sorting method in which the data that is to be sorted cannot be accommodated in the memory and needed auxiliary memory for sorting

### Quick Sort

⇒ It is an internal algorithm which is based on divide and Conquer strategy

⇒ It is also known as "Partition Exchange Sort"

⇒ It uses a Key element (pivot) for partitioning the elements.

In this list is partitioned into any ratio

⇒ Worst case complexity is  $O(n^2)$   
Average case is  $O(n \log n)$

⇒ It cannot work well with large datasets

⇒ It is in place as it doesn't require any additional storage

⇒ It is internal sorting method when the data is stored in main memory.



⇒ It is stable sorting

→ It is unstable sorting

technique

technique

⇒ It is preferred for linked

⇒ It is preferred for arrays

lists

⇒ It has a consistent speed

⇒ It work faster than other

on any size of data

Sorting algorithms for small

data set.

⇒ It is not in place because it requires additional memory space to store the auxiliary arrays.  
⇒ It is external sorting method in which the data that is to be sorted cannot be accommodated in the memory and needs auxiliary memory for sorting.  
⇒ It is internal sorting method when the data is stored in main memory.  
⇒ It cannot work well with large datasets.  
⇒ It work well on any type of data sets irrespective of its size.  
⇒ Same complexities  $O(n \log n)$  Worst case complexity is  $O(n^2)$  into any ratio.  
⇒ Average case is  $O(n \log n)$  Worst case complexity is  $O(n^2)$  In this list is partitioned for partitioning the elements. In this list is partitioned. It uses a key element (pivot) on any size of data.