Quick Sort

- divide and conquer algorithm

- recursive algorithm

- uses pivot element to partition the array into two parts

- elements < pivot – move it to its left ,

  elements > pivot – move It to its right

- after partitioning the array the pivot will then be in its correct sorted position but right and right partition will not be sorted

- process is now repeated for the left array and right array

- eventually, every element has been the pivot, so every element will be in its correct sorted position

- as with the merge sort, we'll end up partitioning the array into a series of 1 element arrays

- does this in place – we don't need any temporary array

- in-place algorithm

- time complexity is O(nlogn) – base 2

- unstable algorithm

Implementation of choosing first element in the array (or subarray) as a Pivot

STEP	20	35	-15	7	55	1	-22	Pivot
0	-22	35	-15	7	55	1	-22	20
1	-22	35	-15	7	55	1	35	20
2	-22	1	-15	7	55	1	35	20
3	-22	1	-15	7	55	55	35	20
4	-22	1	-15	7	20	55	35	-22
5	-22	1	-15	7	20	55	35	1
6	-22	-15	-15	7	20	55	35	1
7	-22	-15	1	7	20	55	35	55
8	-22	-15	1	7	20	35	35	55
9	-22	-15	1	7	20	35	55	SORTED