Quick Sort

pivot   left   right

| 66 |

[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
66	33	99	11	77	22	55	44	88

i   j

LSA.   <= pivot
RSA.   > pivot

arr[i] <= pivot
    i++

66 <= pivot (66) ? Yes i++
33 <= 66 ? Yes i++
99 <= 66 ? No --> swap with other element from the
right.

arr[j] > pivot
    j--

  88 > 66 ? Yes j--
  44 > 66 ? No swap 99 with 44

pivot

| 66 |

[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
66	33	44	11	77	22	55	99	88

i   j

44 <= 66 ? Yes i++
11 <= 66 ? Yes i++
77<=66 ? No -> swap with other element from right

99>66 ? Yes j--
55 > 66 ? No swap with i

Pivot

| 66 |

[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
66	33	44	11	55	22	77	99	88

j

i

55 <= 66 ? Yes i++
22<= 66 ? Yes i++
77<=66 ? No -> swap

77>66 ? Yes j--
I and j cross -> swap
j with left element

[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
22	33	44	11	55	66	77	99	88

Left partitioning -> left to j-1   Right partitioning -> j+1 to right

left   right   left   right

pivot

| 22 |

[0]	[1]	[2]	[3]	[4]
22	33	44	11	55

i   j

Pivot

| 77 |

[6]	[7]	[8]
77	99	88

j   i

22<= 22? Yes i++
33<= 22? No -> swap

55>22 ? Yes -> j--
11 > 22 ? No -> swap with i

77<=77 ? Yes i++
99<=77 ? No -> swap

88>77 > yes -> j--
99>77 -> yes j--

55>22 ? Yes -> J--
11 > 22 ? No -> swap with i

88>77 > yes -> j--
99>77 -> yes j--
I and j cross -> swap j with ele

Pivot 22		[0]	[1]	[2]	[3]	[4]
		22	11	44	33	55

j   i

[6]	[7]	[8]
77	99	88

11<=22 ? Yes -> i++
44 <= 22 ? No -> swap

No Left partition

Right partitioning

33 > 22 ? Yes j--
44 > 22 ? Yes j--

Pivot 99		[7]	[8]
		99	88

j   i

I and j cross -> swap j with left ele.

[0]	[1]	[2]	[3]	[4]
11	22	44	33	55

99<= 99 -> yes i++
88<=99 yes i++

Left partitioning   Right partitioning

I and j cross-> swap j with ele

[0]
11

left   Right

[7]	[8]
88	99

Pivot 44		[2]	[3]	[4]
		44	33	55

j

Left partitioning

[7]
88

i

44<=44 ? Yes i++
33<=44 ? Yes i++
55<=44 ? No -> swap

55>44 ? Yes j--
33>44 ? No
I and j cross
Swap j with left

[2]	[3]	[4]
33	44	55

Left partitioning   Right partitioning

[2]
33

[4]
55