(5) Quick Sort

i) It's a divide and conquer algorithm like Merge Sort but doesn't divide array into equal halves.

ii) Like merge fn in merge sort, quick sort uses partition fn.

iii) Worst Case: $(O(n^2))$ & Avg Case: $(O(n \log n))$

iv) In-place & cache friendly.
   ↳ Acc to array space, requires space for recursion callstacks.

v) Tail Recursive..

Q. Sort with Lomuto Partition & Hoare's Partition

```
Void qSort (int arr[], int l, int h)
{
    if (l < h)
    {
        int p = Lpartition (arr, l, h);
        qSort (arr, l, p-1);
        qSort (arr, p+1, h);
    }
}
```

→ In hoare's partition just replace p-1 by p.

Rest all algo is same for Hoare's algorithm