Quick Sort

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1. Divide and conquer Algorithm
2. Choose a pivot at index q such that A[p, q -1] are all less than A[q] and A[q+1,r] are all greater.
3. The task is to put the pivot in the right place.

Called as Quicksort(A, 0, A.length-1)

Divide & Conquer

Base Condition

Pivot

The following procedure implements quicksort:

```
QUICKSORT(A, p, r)
1  if p < r
2      q = PARTITION(A, p, r)
3      QUICKSORT(A, p, q − 1)
4      QUICKSORT(A, q + 1, r)
```

→ Divide & Conquer

To sort an entire array A, the initial call is QUICKSORT(A, 1, A.length).

```
const partition = (A, p, r) => {
  let j=p, i=p-1 ;pivot = A[r]
  for(let j=p ; j<r ;j++) {
      if(A[j] < pivot)
      {
        i = i+1 ;
        exchange(A[i],A[j]) ;
      }
  }
  Exchange(A[i+1], A[r])
  return i+1;
}
```