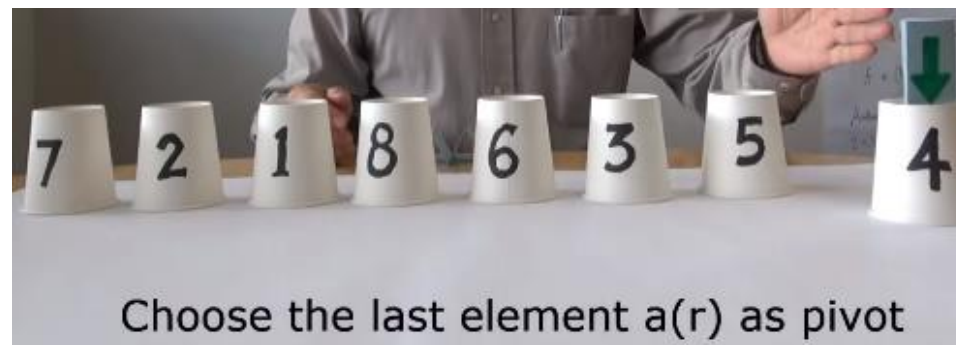# Partitioning an Array in Quicksort:

We need to partition the array into sub-arrays.
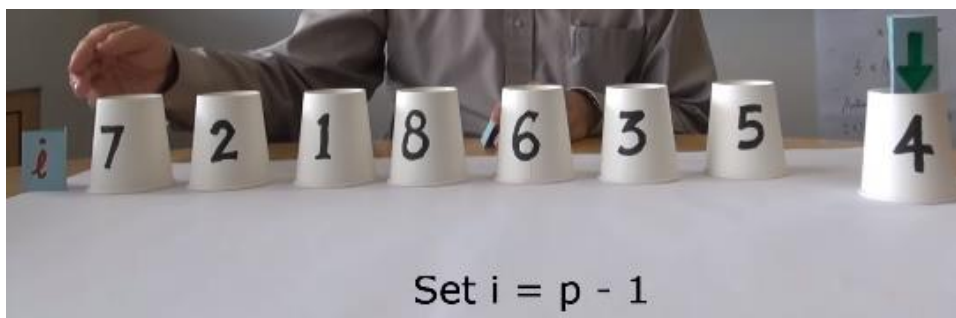
We designate an element as the pivot…

…everything to the left are lesser than the pivot…

…everything to the right are greater than the pivot.

Given an unsorted array, a(p to r)

Choose the last element a(r) as pivot

… we designate our two counters:

Set i = p - 1

j goes from p to r-1

First, we compare the j element with the pivot:

Compare a(j) and a(r)

… since j is larger than pivot, we do nothing.

… now, we compare the next j with the pivot:

if a(j) < a(r) then …
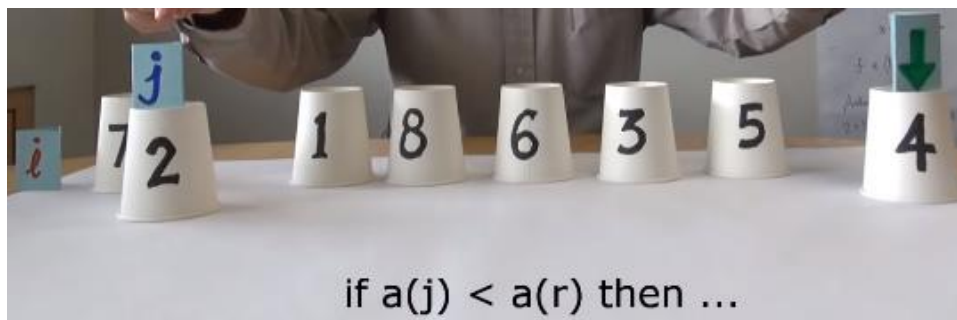
… since j is smaller than pivot, we increment i and swap it with j:

… now, we compare j with pivot:

… since j is smaller than pivot, we increment i and swap it with j:

… 8 and 6 are larger than 4, so we do nothing to them.

Since 3 is smaller than 4, we increment i and swap:

… and finally, we compare 5 with 4, which is larger… so we do nothing.

… j has reached the end, so where do we put the pivot?...

… at 1 + i, which is to the right of 3:

pivot should be at i + 1