**Quick Sort:**

Suppose we have an array -> 10 6 7 3 5 2 1

We have to hold the last element as pivot element. Like here is the pivot element is 1

Now what we have to do is, using the pivot table we have to devide the values in such a way that 1 comes in the middle , all the elements which are smaller than 1 will be left to 1 and all the elements which are greater than will be in the right side of 1.

If we find any smaller element than the last element we will swap arr[I] with arr[j] and increment j.

We will loop till the last end of the array.

After the loop we will again swap arr[j] with arr[end]

So iteration ->

Start =0

End = 6

J=0

10 > 1

6 > 1

7 > 1

3 > 1

5 > 1

2 > 1

So after the loop ,j=0;

We see that there is no element smaller than 1 in the array

So after the loop swap(arr[j],arr[end]), swap(arr[0],arr[6])

Now the elements are -> 1 6 7 3 5 2 10

Now as j is 0, we will devide the array in j-1 which is nothing and j+1 (6,7,3,5,2,10)

And will sort them individually

As j-1 , there are no elements.

We will now do the same thing on (6,7,3,5,2,10)

Pivot element = 10;

i=1

j=1

6 < 10

j++

So swap arr[i].arr[j] (This i is running the for loop)

i=2,

J=2,

7<10

So swap arr[i].arr[j]

Like this all the elements of the array are smaller than 10

So, as i and j will have same value incrementing together swapping will return the same value.

Array -> (6,7,3,5,2,10)

By doing this to the whole array we seet tha there is no element > 10

So j will point at 10 after the loop

Swap(arr[j],arr[end])which is(10,10)

Now the array is **1** 6 7 3 5 2 **10** (bold ones are in sorted position)

we will devide the array in j-1 (6,7,3,5,2) and j+1 which is nothing

Array needs to be sorted is now -> 6,7,3,5,2

Pivot is now 2

6>2, nothing to do

7>2, nothing to do

3>2 nothing to do

5>2 nothing to do

Loop ends

Swap(arr[0],arr[end])

Array is -> 2,7,3,6

Whole array is --> **1** **2** 7 3 6 **10** (bolds one are in sorted position)

Now the array remains to sort --> 7 3 6

Pivot is --> 6

7>6, nothing to do

3<6 , Swap(7,3)

Array is ---> 3 7 6

Loop ends

Swap (7,6)

Array is --> 3 6 7

Whole array is --> **1 2 3 6 7 10** ( All are in sorted position now)