**Illustration of partition() :**

arr[] = {10, 80, 30, 90, 40, 50, 70}

Indexes: 0 1 2 3 4 5 6

low = 0, high = 6, pivot = arr[h] = 70

Initialize index of smaller element, **i = -1**

Traverse elements from j = low to high-1

**j = 0** : Since arr[j] <= pivot, do i++ and swap(arr[i], arr[j])

**i = 0**

arr[] = {10, 80, 30, 90, 40, 50, 70} // No change as i and j

// are same

**j = 1** : Since arr[j] > pivot, do nothing

// No change in i and arr[]

**j = 2** : Since arr[j] <= pivot, do i++ and swap(arr[i], arr[j])

**i = 1**

arr[] = {10, 30, 80, 90, 40, 50, 70} // We swap 80 and 30

**j = 3** : Since arr[j] > pivot, do nothing

// No change in i and arr[]

**j = 4** : Since arr[j] <= pivot, do i++ and swap(arr[i], arr[j])

**i = 2**

arr[] = {10, 30, 40, 90, 80, 50, 70} // 80 and 40 Swapped

**j = 5** : Since arr[j] <= pivot, do i++ and swap arr[i] with arr[j]

**i = 3**

arr[] = {10, 30, 40, 50, 80, 90, 70} // 90 and 50 Swapped

We come out of loop because j is now equal to high-1.

**Finally we place pivot at correct position by swapping**

**arr[i+1] and arr[high] (or pivot)**

arr[] = {10, 30, 40, 50, 70, 90, 80} // 80 and 70 Swapped

Now 70 is at its correct place. All elements smaller than

70 are before it and all elements greater than 70 are after

it.