QUICK SORT

QuickSort is a sorting algorithm based on the Divide and conquer algorithm that picks an element as pivot and partitions the given array around the picked pivot by placing the pivot in the sorted array.

Working -

Choose a Pivot: Select a pivot element from the array. The pivot is used to partition the array into sub arrays.

Partitioning: Rearrange the array elements such that all elements less than the pivot are on left and all the elements greater than pivot are on right. The pivot itself is now in its sorted position.

Recursion: Apply the QuickSort algorithm recursively to the sub array on the left and right of the pivot until the entire array is sorted.

Example -

```
public class QuickSort1
    public static void main(String[]args){
        int[]arr={15,4,3,2,17};
        sort(arr,0,arr.length-1);
    }
static void sort(int[]nums, int high, int low){
    if(low>=high)
        return;
    int s = low;
    int e = high;
    int m = (s+e)/2
    int pivot = nums[m];
    while(s<=e){
        while(nums[s]<pivot){
            s++;
        }
        while(nums[e]>pivot){
            e--;
        }
    if(s<=e){
        int temp=nums[s];
        nums[s]=nums[e];
        nums[e]=temp;
    }
        sort(nums,low,e);
        sort(nums,s,high);
    }
}
```