**WRITE A PROGRAM IN JAVA IMPLEMENTING THE QUICK SORT ALGORITHM**

package sorting;

import java.util.InputMismatchException;

import java.util.Scanner;

public class QuickSort {

public int partition(int arr[], int low, int high) {

int pivot = arr[high];

int i = low-1;

for(int j=low; j<high; j++) {

if(arr[j] <= pivot) {

i++;

int temp = arr[i];

arr[i] = arr[j];

arr[j] = temp;

}

}

int temp = arr[i+1];

arr[i+1] = arr[high];

arr[high] = temp;

return i+1;

}

public void quickSort(int arr[], int low, int high) {

if(low < high) {

int partitionIndex = partition(arr, low, high);

quickSort(arr, low, partitionIndex-1);

quickSort(arr, partitionIndex+1, high);

}

}

public void printArray(int arr[]) {

System.out.print("[");

for(int i=0; i<arr.length; i++) {

System.out.print(arr[i]);

if(i != arr.length-1) {

System.out.print(",");

}

}

System.out.print("]");

System.out.println();

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

QuickSort obj = new QuickSort();

try {

System.out.println("Enter the size of array: ");

int size = sc.nextInt();

if(size <= 0) {

System.out.println("Invalid input");

sc.close();

return;

}

int arr[] = new int[size];

System.out.println("Enter the array elements: ");

for(int i=0; i<size; i++) {

arr[i] = sc.nextInt();

}

System.out.println("Original array: ");

obj.printArray(arr);

obj.quickSort(arr, 0, size-1);

System.out.println("\nAfter sorting: ");

obj.printArray(arr);

} catch (InputMismatchException e) {

System.out.println("Invalid input");

}

sc.close();

}

}