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//Java Program to Implement Quick Sort

import java.io.BufferedReader;
import java.io.InputStreamReader;
import java.util.Arrays;
import java.util.Random;

public class QuickSort {
   // Function to partion the array on the basis of the pivot value;
   static int partition(int[] array, int low, int high) {
      int j, temp, i = low + 1;
      Random random = new Random();
      int x = random.nextInt(high - low) + low;
      temp = array[low];
      array[low] = array[x];
      array[x] = temp;
      for (j = low + 1; j <= high; j++) {
         if (array[j] <= array[low] && j != i) {
            temp = array[j];
            array[j] = array[i];
            array[i++] = temp;
         } else if (array[j] <= array[low]) {
            i++;
         }
      }
      temp = array[i - 1];
      array[i - 1] = array[low];
      array[low] = temp;
      return i - 1;
```

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}
// Function to implement quick sort
static void quickSort(int[] array,int low,int high){
   if(low<high){
      int mid = partition(array,low,high);
      quickSort(array,low,mid-1);
      quickSort(array,mid+1,high);
   }
}
// Function to read user input
public static void main(String[] args) {
   BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
   int size;
   System.out.println("Enter the size of the array");
   try {
      size = Integer.parseInt(br.readLine());
   } catch (Exception e) {
      System.out.println("Invalid Input");
      return;
   }
   int[] array = new int[size];
   System.out.println("Enter array elements");
   int i;
   for (i = 0; i < array.length; i++) {
      try {
         array[i] = Integer.parseInt(br.readLine());
      } catch (Exception e) {
         System.out.println("An error Occurred");
      }
```

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        }
        System.out.println("The initial array is");
        System.out.println(Arrays.toString(array));
        quickSort(array,0,array.length-1);
        System.out.println("The sorted array is");
        System.out.println(Arrays.toString(array));
    }
}
```