PRACTICE-PROJECT8

IMPLEMENTING THE QUICK SORT ALGORITHM –

**package** project;

**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();

}

}