package algorithms;  
  
public class SelectionSort {  
 private long comparisons = 0;  
 private long swaps = 0;  
 private long arrayAccesses = 0;  
  
 public void sort(int[] arr) {  
 int n = arr.length;  
 for (int i = 0; i < n - 1; i++) {  
 int minIndex = i;  
 for (int j = i + 1; j < n; j++) {  
 comparisons++;  
 arrayAccesses += 2;  
 if (arr[j] < arr[minIndex]) {  
 minIndex = j;  
 }  
 }  
 if (minIndex != i) {  
 int temp = arr[i];  
 arr[i] = arr[minIndex];  
 arr[minIndex] = temp;  
 swaps++;  
 arrayAccesses += 4;  
 }  
 }  
 }  
  
 public long getComparisons() { return comparisons; }  
 public long getSwaps() { return swaps; }  
 public long getArrayAccesses() { return arrayAccesses; }  
}

package cli;  
  
import algorithms.SelectionSort;  
import java.util.Scanner;  
  
public class Main {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
  
 System.*out*.println("Enter number of elements:");  
 int n = sc.nextInt();  
 int[] arr = new int[n];  
  
 System.*out*.println("Enter " + n + " numbers:");  
 for (int i = 0; i < n; i++) {  
 arr[i] = sc.nextInt();  
 }  
  
 SelectionSort sorter = new SelectionSort();  
  
 long start = System.*nanoTime*();  
 sorter.sort(arr);  
 long end = System.*nanoTime*();  
  
 System.*out*.println("Sorted array:");  
 for (int num : arr) {  
 System.*out*.print(num + " ");  
 }  
 System.*out*.println("\nTime (ms): " + (end - start) / 1\_000\_000);  
 System.*out*.println("Comparisons: " + sorter.getComparisons());  
 System.*out*.println("Swaps: " + sorter.getSwaps());  
 System.*out*.println("Array accesses: " + sorter.getArrayAccesses());  
 }  
}