#include<iostream>

using namespace std;

int swaps=0;

int comps=0;

void swap(int \*a, int \*b) {

int temp;

temp = \*a;

\*a = \*b;

\*b = temp;

}

int Partition(int a[], int l, int h) {

int pivot, index, i;

index = l;

pivot = h;

for(i = l; i < h; i++) {

if(a[i] < a[pivot]) {

comps++;

swap(&a[i], &a[index]);

index++;

}

}

swaps++;

swap(&a[pivot], &a[index]);

return index;

}

int RandomPivotPartition(int a[], int l, int h) {

int pvt, n, temp;

n = rand();

pvt = l + n%(h-l+1);

swap(&a[h], &a[pvt]);

return Partition(a, l, h);

}

int QuickSort(int a[], int l, int h) {

int pindex;

if(l < h) {

pindex = RandomPivotPartition(a, l, h);

QuickSort(a, l, pindex-1);

QuickSort(a, pindex+1, h);

}

return 0;

}

int main() {

int n, i;

cout<<"\nEnter the number of data element to be sorted: ";

cin>>n;

int arr[n];

for(i = 0; i < n; i++) {

cout<<"Enter element "<<i+1<<": ";

cin>>arr[i];

}

QuickSort(arr, 0, n-1);

cout<<"\nSorted Data ";

for (i = 0; i < n; i++)

cout<<"->"<<arr[i];

cout<<endl<<comps<<" "<<swaps;

return 0;

}

Text

Description automatically generated