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Quick-sort

Problem Submissions Leaderboard Discussions

Sort a given set of n integer elements using Quick Sort method and compute its time complexity. Run the program for varied values of n> 5000 and record the time taken to sort. Plot a graph of the time taken versus non graph sheet.The elements can be read from a file or can be generated using the random number generator. Demonstrate using Java how the divide - and - conquer method works along with its time complexity analysis: worst case, average case and best case.

Input Format

5 0 0 4 3 1

Constraints

Size of the array should be always positive

Output Format

Before Sort: 0 0 4 3 1 After sort: 0 0 1 3 4

Sample Input 0

```
5
0
0
4
3
1
```

Sample Output 0

```
Before Sort:
0
0
4
3
1
After sort:
0
0
1
3
4
```

Contest ends in 2 months

Submissions: 87
Max Score: 10

Difficulty: Medium

Rate This Challenge:

☆☆☆☆☆

More

Java 7

```
//224G1A0553
import java.util.Scanner;
class QuickSort {
 private int a[];
 public QuickSort(int[] a)
 {
 this.a = a;
 }
 public int partition ( int a[], int m, int p ) {
 int v = a[m];
 int i = m;
 int j = p;
 do {
 while (a[++ i] <v);
 while ( a[-- j] > v );
 if ( i < j )
 interchange ( a, i, j );
 }
 while ( i <= j );
 a[m] = a[j]; a[j] = v;
 return j;
 }
 public void qSort ( int p, int q ) {
 int j;
 if ( p < q ) {
 j = partition ( a, p, q + 1 );
 qSort ( p, j - 1 );
 qSort ( j + 1, q );
}}
 public void interchange ( int a[], int i, int j ) {
 int t;
 t = a[i];
 a[i] = a[j];
 a[j] = t;
 }}
public class QuickSortDemo {
 public static void main(String[] args) {
 int n, a[], i;
 Scanner input = new Scanner(System.in);//System.out.print("Enter the Size of an Array: ");
 n = input.nextInt();
 a = new int[n + 1]; //System.out.println("System automatically generates numbers ");
 for ( i = 0; i < n; ++ i ){
 a[i] = input.nextInt(n);
 }
 a[i] = 100000; //Sentinel value
 QuickSort qSort = new QuickSort(a);
 System.out.println("Before Sort: ");
 for ( i = 0; i < n; ++ i ) {
 System.out.print(a[i] + "\n");
 }
 int p = 0;
 int q = n - 1;
 qSort.qSort(p, q);
 System.out.println("After sort: ");
 for ( i = 0; i < n; ++ i ) {
 System.out.print(a[i] + "\n");
}}}
```

Line: 1 Col: 13

Upload Code as File □ Test against custom input Run Code Submit Code

Testcase 0 ✓

Congratulations, you passed the sample test case.

Click the **Submit Code** button to run your code against all the test cases.

Input (stdin)

```
5
0
0
4
3
1
```

Your Output (stdout)

```
Before Sort:
0
0
4
3
1
After sort:
0
0
1
3
4
```

Expected Output

```
Before Sort:
0
0
4
3
1
After sort:
0
0
1
3
4
```

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