TY. B. Tech.

Design & Analysis of Algorithm

Assignment No: 3

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Assignment No: 2

Quick Sort

Code:

```java
import java.util.*;
public class QuickSort {
    public static int[] QuickSort(int[] arr, int elements) {    This method has a constructor name
        if(elements < 2){
            return arr;
        }
        int current_position=0;
        int temp;

        for(int i=1; i<elements; i++)
        {
            if(arr[i] <= arr[0])
            {
                current_position++;
                temp = arr[i];
                arr[i] = arr[current_position];
                arr[current_position] = temp;
            }
        }

        temp = arr[0];
        arr[0] = arr[current_position];
        arr[current_position] = temp;

        int[] left = QuickSort(arr,current_position);
        int[] arr2 = Arrays.copyOfRange(arr, current_position+1, elements);
        int[] right = QuickSort(arr2, elements-current_position-1);
        int[] final_array = new int[elements];

        for(int i=0; i<current_position; i++)
        {
            final_array[i] = left[i];
        }
        final_array[current_position] = arr[current_position];
        for(int i=current_position+1; i<elements; i++)
        {
            final_array[i] = right[i-current_position-1];
        }

        return final_array;

    }
}
```

```java
public static void main(String[] args) {
    int[] array = {4,2,7,3,1,6};
    System.out.print(s:"Original Array: [");
    for(int i=0; i<array.length;i++)
    {
        System.out.print(array[i]);
        System.out.print(s:" ");
    }
    System.out.println(x:"]");




    array = QuickSort(array, array.length);

    System.out.print(s:"Sorted Array: [");
    for(int i=0; i<array.length;i++)
    {
        System.out.print(array[i]);
        System.out.print(s:" ");
    }

    System.out.print(s:"]");
}
```

Output:

```
t_ws/DAA_59276fed/bin quicksort.QuickSort
Original Array: [4 2 7 3 1 6 ]
Sorted Array: [1 2 3 4 6 7 ]%
```

(This page marks the end of the assignment)