C# - Sorting Algorithm - QuickSort Recursive

We often using sorting algorithm to sort numbers and strings. Also we have many sorting algorithms. I have explained here on how mergesort algorithm works in recursive mode.

The recusrive approach requires creatiion multi branch recursion by dividing the number of elements by two. For each time when partition method is called, the pivot is placed at the correct position meaning all the elements to the left are less than the pivot value and all the elements to right are greater than the pivot value.

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Click here for C# QuickSort Recursive Algorithm
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The complete program and test run output are given below:

```
using System;
using System.Collections.Generic;
using System.Text;

namespace CSharpSort
{
    class Program
    {

        static public int Partition(int [] numbers, int left, int right)
        {
            int pivot = numbers[left];
              while (true)
              {
                while (numbers[left] < pivot)
                    left++;

                while (numbers[right] > pivot)
                    right--;

                if (left < right)
                    {
                    int temp = numbers[right];
                    numbers[right] = numbers[left];
                    numbers[left] = temp;
                    }
                    else
                    {
                          return right;
                    }
              }
        }

        static public void QuickSort_Recursive(int [] arr, int left, intright)
        {
```

```
            // For Recusrion
            if(left < right)
            {
                int pivot = Partition(arr, left, right);

                if(pivot > 1)
                    QuickSort_Recursive(arr, left, pivot - 1);

                if(pivot + 1 < right)
                    QuickSort_Recursive(arr, pivot + 1, right);
            }
        }

        static void Main(string[] args)
        {
            int[] numbers = { 3, 8, 7, 5, 2, 1, 9, 6, 4 };
            int len = 9;

            Console.WriteLine("QuickSort By Recursive Method");
            QuickSort_Recursive(numbers, 0, len - 1);
            for (int i = 0; i < 9; i++)
                Console.WriteLine(numbers[i]);

            Console.WriteLine();

        }
    }
}
```

http://www.softwareandfinance.com/CSharp/QuickSort_Recursive.html