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using System;

public class HelloWorld

{

public static void Main(string[] args)

{

int[] numbers = new int[] { 12, 30, 15, 6, 16, 12, 19, 20 };

int len = numbers.Length;

Console.WriteLine("Numbers before Sorting");

for (int i = 0; i < len; i++)

{

Console.WriteLine(numbers[i]);

}

Console.WriteLine("Numbers After Sorting");

MergeSort(numbers, 0, len - 1);

foreach (int num in numbers)

{

Console.WriteLine(num);

}

}

static void MergeMethod(int[] numbers, int start, int mid, int end)

{

int[] temp = new int[30];

int i, left\_end, num\_elements, pos;

left\_end = (mid - 1);

pos = start;

num\_elements = (end - start + 1);

while ((start <= left\_end) && (mid <= end))

{

if (numbers[start] <= numbers[mid])

{

temp[pos++] = numbers[start++];

}

else

{

temp[pos++] = numbers[mid++];

}

}

while (start <= left\_end)

{

temp[pos++] = numbers[start++];

}

while (mid <= end)

{

temp[pos++] = numbers[mid++];

}

for (i = 0; i < num\_elements; i++)

{

numbers[end] = temp[end];

end--;

}

}

static void MergeSort(int[] numbers, int start, int end)

{

int mid;

if(end > start)

{

mid = (end + start) / 2;

MergeSort(numbers, start, mid);

MergeSort(numbers, (mid + 1), end);

MergeMethod(numbers, start, (mid + 1), end);

}

}

}