Challenge: Implement Merge Sort

The mergeSort function should recursively sort the subarray **array[p..r]** i.e. after calling mergeSort(array,p,r) the elements from index p to index r of array should be sorted in ascending order.

To remind you of the merge sort algorithm:

-If the subarray has size 0 or 1, then it's already sorted, and so nothing needs to be done.

-Otherwise, merge sort uses divide-and-conquer to sort the subarray.

Use **merge(array, p, q, r)** to merge sorted sub arrays **array[p..q]** and **array[q+1..r]**.

Java | Python | C++ | JS

```
class Solution {
  // Takes in an array that has two sorted subarrays,
  //  from [p..q] and [q+1..r], and merges the array
  static void merge(int array[], int p, int q, int r) {
      // This code has been purposefully obfuscated,
      //  as you'll write it yourself in next challenge.
      int i, j, k; int n1 = q - p + 1; int n2 =  r - q; int[] L = new int[n1]; int[] R = new
  }

  // Takes in an array and recursively merge sorts it
  public static void mergeSort(int[] array, int p, int r) {
        // Write this method


  };
}
```