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Design Document for the Quick Sort Algorithm

The quick sort algorithm uses a divide and conquer approach. To represent that I will sort a single partition at a time. For each partition there will be a “pivot”, a “hi”, as well as a “lo” element that will be represented as red, blue and yellow respectively, while the other unsorted elements will be grey. As the “hi” and “lo” move to find their correct locations, the elements will change colour. The new “hi” will change to its colour and the old “hi” will change back to grey. Same goes for the “lo” element. If “hi” and “lo” find an element before crossing over, those elements will drop below the array and will switch positions to represent the swap. As they are being swapped their colours must also swap as “hi” and “lo” should stay in the same position. Once the partition is finished the “pivot” is swapped with “lo” in the same manor, but the pivot element will change colour to green and the “lo” element will change back to grey to show that the sorting is complete for that partition and the pivot element is fully sorted. Once the entire array is green, the sort is complete.