1. When implementing Insertion Sort, a binary search could be used to locate the position within the first i-1 elements of the array into which the item in position i should be inserted. How would this affect the number of comparisons? How would this affect the “big O” for the algorithm?
2. When discussing selection sort, we discussed the idea of adding an IF statement before the swap to not do a swap if the swap was swapping position i with position i. Would this modification actually improve the run time of the algorithm?
3. Devise an algorithm to sort 3 items. It should EXECUTE as few comparisons as possible (there may be more written than executed). How many comparisons are required in the best and worst cases of your algorithm.