Assignment 12 Reflection:

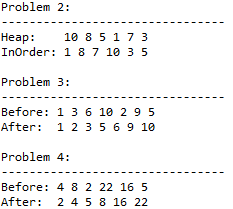
All of the requirements for Assignment 12 are complete.

Not sure if I was overthinking this assignment, but I had a real tough time coming up with the algorithms. Problems 1 and 2 weren’t too bad, but after spending several hours getting nowhere on the Insertion Sort using binary search, I decide to do some research online and came across an article that explained the concepts to how the algorithm works. The simple solution was to use a for loop that starts with a value of i=1. With each loop, the i value represents the last location, while 0 represents the first location. The value within the last location is the next value getting added to the list, so it’s new spot is found by using a binary search algorithm.

I also struggled with the Merge Sort Algorithm. It could be the fact that I spent 6 hours working on the Insertion Sort and immediately jumped into the Merge Sort, so I definitely could’ve been overthinking at this point. Finally, I a simple sort for each half of the array, and then when I merged them, I used an insert method that inserted each value from the right half of the list, using code similar to that of the Insertion Sort.

* Problem 1:
  1. After heap building (makeItHeap):
     1. 59,45,20,34,12,10,15,2,21,4
  2. 4 iterations of swap and reheap
     1. 45,34,20,21,12,10,15,2,4,**59**
     2. 34,21,20,4,12,10,15,2,**45,59**
     3. 21,12,20,4,2,10,15,**34,45,59**
     4. 20,12,15,4,2,10,**21,34,45,59**
* Problem 3: The big-o efficiency of comparisons is O(nlogn)
* Problem 4: The big-o efficiency is O(N2)

**Assign12App.java**



**Test Scenarios:**

* + printInOrder()
    - Test with no values
      * Returns empty and without error
    - Test with values
      * Returns a string with values sorted in the “in-order” format
  + InsertionSort()
    - Test with no values
      * Returns empty and without error
    - Test with values
      * Returns a string with values sorted in the “in-order” format
  + InsertionSort()
    - Test with no values
      * Returns empty and without error
    - Test with values
      * Returns a string with values sorted in the “in-order” format