Week 3 Quiz

Solutions

Name: ________________________________ NetID (email): __________________

Fill in your name and NetID.
Please do not open the quiz until I tell you to do so.

Directions: Answer the following questions to the best of your ability. When appropriate, we encourage you to show your work, to help us understand your thought process. Quizzes count toward your grade; please take them seriously.
1. Merge Sort has two basic steps. Explain (at a high level) what the first one does. (You don’t have to give details about how it works.)

**Solution:** It splits the array of values into two subarrays, and then recurses into each of the subarrays.

**Alternate Answer:**
It splits the array into many different small arrays, and then sorts each of the small arrays using an $O(n^2)$ algorithm.

2. Explain, at a high level, what the second step of Merge Sort does. (Again, don’t give the details).

**Solution:** It takes two sub-arrays, both of which are already sorted, and merges them into a single array, which contains all of the same elements, mixed together (in order).

3. The second step has the following inputs:

   
   [8, 16, 19, 35, 54, 58, 75, 76]
   
   [6, 10, 15, 34, 37, 41, 56, 66]

   What is its output?

**Solution:**

   [6, 8, 10, 15, 16, 19, 34, 35, 37, 41, 54, 56, 58, 66, 75, 76]