Assignment 5

**Please read turn-in checklist at the end of this document before you start doing exercises.**

**Java Implementation**

1. Implement Question 4 of Online Quiz 6 in Java.

Note:

Find a file called Problem1.java in assignment 5 folder.

Complete the method of intersection() and union().

Test your method in the main method provided following the comments.

**Full credit (30 points) will be awarded for an algorithm that is O(n) and in-place. Algorithms that are NOT in-place or O(nlogn) or slower will be scored out of 10 points.**

**Important: In all of the assignments of this course, when you are asked to implement an algorithm for a problem, your code will be evaluated based on:**

**5 points - Execution**

**Each file must run without error or warning on valid input described in the main method provided.**

**5 points - Within Code Documentation**

**Is the code documented for obvious understanding of the use, preconditions, and postconditions of each function?**

**20 points - Correctness**

**Is the algorithm implemented correctly? Does your method pass the test?** **You must write your own test cases in addition to the example ones provided. The example tests do not count as your own. You should use these tests to confirm that your algorithms work as expected, but they will also be graded according to how comprehensive they are. We will grade your tests by running them against broken implementations of the problems. The more errors your tests catch, the better. When writing tests, try to think of every possible edge case and every kind of input that could be passed into your functions. Keep in mind though that writing many tests which are similar will not earn a better score. Quality over quantity!**

1. Implement Question 5 of Online Quiz 6 in Java.

Note:

Find a file called Problem2.java in assignment 5 folder.

Complete the method of partition\_2pivots() and quicksort\_2pivots().

Test your method in the main method provided following the comments.

1. Implement Question 6 of Online Quiz 6 in Java.

Note:

Find a file called Problem3.java in assignment 5 folder.

Complete the method of threeway().

Test your method in the main method provided following the comments.

**Note: Full credit (30 points) will be awarded for an algorithm that is O(n) and in-place. Algorithms that are NOT in-place or slower than O(n) slower will be scored out of 10 points.**

**TURN-IN CHECKLIST:**

1. **All your source Code (.java files). Remember to include your name, the date, and the course number in comments near the beginning of your code.**
2. **Create a folder and name it 'FirstName\_LastName\_assignment\_4'. In the newly created folder copy and paste your files (.java files). Then compress the folder, and push it to iLearn.**