Mia Watts

**Set Operations Method Descriptions**

**Union**

The union method takes two parameters, an Array List called setOne and an Array List setTwo, that are compared to combine all elements that both sets have, avoiding duplicates. The two loops present here first iterate through the first set, checking to see if the values in the set are already in the result array. If they aren’t, they are added. Similarly, the second loop iterates through the second set, adding any leftover values that may still be present in the second set that wasn’t added to the result array from the first. The method avoids duplicates, as mentioned earlier, by making sure the value is not already in the result array, because if it is, it shouldn’t be added again.

**Intersection**

The intersection method takes two parameters, an Array List called setOne and an Array List setTwo, both of which are used to find values that are identical in both. The method checks to see, through iterating via nested for loops, whether a singular value in the first set is identical to any of the values in the second set. If a value is identical and it hasn’t already been added to the result array (which avoids duplicates), the value is added to the result array. This ensures that the values in the result array do not repeat and are only the values that both sets have in common.

**Complement**

The complement method takes two parameters, an Array List to be complemented and an Array List that is represented as the bound array that binds the original set (i.e., all values in the set can be compared to the total values in the entire scope of the problem and can then have its complement returned). The method checks to see, while iterating through all values of the bound array, whether the value is present in both the complement results array and the set to be complemented. If the value is not present in both, the value is then added to the result array. This avoids duplicates in that it makes sure the value being considered isn’t already within the result array, thus making it so the values aren’t added multiple times if there are certain sections in which there are multiple identical values.

* ResultArrayList – stores result of the complemented set