Dr. Barker's CS 2420
Report by Weston Shakespear
Summer 2023

Final Programming

Set Sizes

A: 859

B: 317

C: 1958

Operation Sizes:

	Operation		
Sets	*Union*	*Intersection*	*Difference*
A, B	859	317	542
B, A			0
A, C	2500	317	542
C, A			1641
B, C	1958	317	1958
C, B			1641

Process:

- To complete the insert method I used an iterator much like the SortedLinkedList class does. I implemented this to keep the sets sorted as well since it made the debugging a little easier and made sense.

- For the union method I iterated over each input set and called insert for each of the values.

- For the intersection method I iterated over the first set and used the find method to check if the value was in the second set. If it was, the value was inserted into the result set.

- For the difference method I used the same code as the intersection method, but used a not in front of the finding.

Final Programming

```
The size of set A is 859
The size of set B is 317
The size of set C is 1958


Testing Union:

    |A U B|
        First Set Size:   859
        Second Set Size:  317
        --------------------
        Result Set Size:  859

    |A U C|
        First Set Size:   859
        Second Set Size: 1958
        --------------------
        Result Set Size: 2500

    |B U C|
        First Set Size:   317
        Second Set Size: 1958
        --------------------
        Result Set Size: 1958

Testing Intersection:

    |A n B|
        First Set Size:   859
        Second Set Size:  317
        --------------------
        Result Set Size:  317

    |A n C|
        First Set Size:   859
        Second Set Size: 1958
        --------------------
        Result Set Size:  317

    |B n C|
        First Set Size:   317
        Second Set Size: 1958
        --------------------
        Result Set Size:  317

Testing Union:

    |A \ B|
        First Set Size:   859
        Second Set Size:  317
        --------------------
        Result Set Size:  542

    |B \ A|
        First Set Size:   317
        Second Set Size:  859
        --------------------
        Result Set Size:    0

    |A \ C|
        First Set Size:   859
        Second Set Size: 1958
        --------------------
        Result Set Size:  542

    |C \ A|
        First Set Size:  1958
        Second Set Size:  859
        --------------------
        Result Set Size: 1641

    |B \ C|
        First Set Size:   317
        Second Set Size: 1958
        --------------------
        Result Set Size: 1958

    |C \ B|
        First Set Size:  1958
        Second Set Size:  317
        --------------------
        Result Set Size: 1641
```