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Course: COMP 2113 FA01, 2023

Assignment 1, Question 4

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I certify that this code is my own.

I have not broken any rules concerning Academic Dishonesty.

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- Did you test your code to see what would happen when you had duplicate numbers?

Duplicate numbers will stay in place instead of being moved. If I wanted to move duplicate numbers, I could add an equal to sign after the > in line 22 but that would be an unnecessary move.

```
jprograms -- zsh -- 124x24
Last login: Mon Sep 25 00:20:54 on ttys004
brendan@Brendans-MacBook-Pro ~ % jcd
brendan@Brendans-MacBook-Pro jprograms % javac generate_nums.java
brendan@Brendans-MacBook-Pro jprograms % javac insertion_sort.java
brendan@Brendans-MacBook-Pro jprograms % javac sort_check.java
brendan@Brendans-MacBook-Pro jprograms % java generate_nums idk what to do
User Instructions: java generate_nums <num> <min_value> <max_value>
brendan@Brendans-MacBook-Pro jprograms % java generate_nums 1000 -1000 1000 > nums.txt
brendan@Brendans-MacBook-Pro jprograms % java insertion_sort < nums.txt > nums_sorted.txt
brendan@Brendans-MacBook-Pro jprograms % java sort_check < nums_sorted.txt
Sorted
brendan@Brendans-MacBook-Pro jprograms % java sort_check < nums.txt
Not Sorted
brendan@Brendans-MacBook-Pro jprograms %
```

- Did you test your code to make sure it works with negative and positive numbers?

Yes, the code works for all integers as seen below.

Failure points of these codes have been addressed in the code. If the code is empty, if there is only 1 number in the list and if the user enters incorrect values while running generate_nums.java in command line.

```
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User Instructions: java generate_nums <num> <min_value> <max_value>
brendan@Brendans-MacBook-Pro jprograms % java generate_nums 1000 -1000 1000 > nums.txt
brendan@Brendans-MacBook-Pro jprograms % java insertion_sort < nums.txt > nums_sorted.txt
brendan@Brendans-MacBook-Pro jprograms % java sort_check < nums_sorted.txt
Sorted
brendan@Brendans-MacBook-Pro jprograms % java sort_check < nums.txt
Not Sorted
brendan@Brendans-MacBook-Pro jprograms %
```

→ compiling

→ User Instructions

→ All data generated is put in nums.txt

↓

All data from nums.txt is used in the program and updated data is put in nums_sorted.txt

All tested code

java generate_nums 0 -10 10 (tested to see what happens with 0 elements)

java generate_nums 0 0 0 (tested to see what happens with 0 elements)

Returns nothing.

java generate_nums 10 -10 10 (tested to see what happens with 10 elements which are small and include all integers)

java generate_nums 10 0 10 (tested to see what happens with 10 elements which are small and include only positive nums)

java generate_nums 10 -10 -1 (tested to see what happens with 10 elements which are small and include only negative nums)

*java generate_nums idk (tested to see what happens when user does not know what to do)

java generate_nums 1000 -1000 1000 (tested to see what happens with 1000 elements which are large and include all integers)

java generate_nums 10000 -10000 10000 (tested to see what happens with 10000 elements which are large and include all integers)

All above code works as expected.

Code only works with integers.

1 point of failure: -

Where the user enters 3 values in the command line and it cannot be converted to integers.

Insertion sort has been tested with empty file a file with 1 number and all above cases except the *.

Works as expected.

Sort check has also been tested with an empty file a file with 1 number and all of the above cases except the *.

Again, works like expected.