**Arrays.sort() Property Testing**

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CS 1632 – DELIVERABLE 4

PROPERTY-BASED TESTING

https://github.com/CCondeluci/CS1632-Deliverable4

**SUMMARY AND CHALLENGES**

For this deliverable, I chose to perform the property based tests on the Java Arrays.sort() method. The choice was mostly based in my familiarity and comfort with Java and the Arrays library, as I have been using it since before I even became enrolled in the university. I also felt that property based testing was something that I could immediately use in my other projects and assignments that I am working on, namely my 1520 Web Applications project and the specific systems I am developing for it.

I decided to test most of the list properties we discussed in class, as many of the tests were simple to conceptualize and write. I wanted to try to isolate the Arrays class as much as I could and not depend on other libraries (like Collections or List), so I kept the overall size of the arrays to ten to thirty elements so using manual looping to check for elements that are contained in an array did not become extremely costly. I developed each test as its own method, as this seemed most appropriate with the use of “@BeforeClass” to set up the randomized arrays. I used two random number generators for this with the same arbitrary seed each time so the results would be the same for each test run.

Even though the tests and properties themselves were not overtly complex, testing the Arrays.sort() method showed me how trying to keep your tests independent of outside functionality can be a large hassle and sometimes impossible (if you are working with code that you yourself have not written). This was particularly evident when testing for arrays that contain values, as “.contains()” is simple to use yet requires the use of other Collections methods, like “.asList()”.

The code for these JUnit tests can be found here:

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**TEST SCREENSHOTS**

