Lab Report – Week 5 – *Iterative Sorting Assignment*

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Assignment Analysis and Design

This week's assignment was to correctly implement two iterative sorting methods, the selection sort and the insertion sort. The selection sort method takes the minimum item in the list and swaps it with the first object, which is referred to as an in-place sort. The method then repeats itself from the next object and continues down the list. The Insertion sort method takes the next object and then compares it to the first object. Then it takes the next object and then compares it to the previously sorted objects.

To complete this assignment, I created two methods, one with an ascending selection sort algorithm and the other with a descending insertion sort algorithm. Both methods load data from the Tutorial.txt file and create an object array called TutorialWebsites. This object class was created with the required parameters, get and set methods for each property, a compareTo method, and a toString method. Then each algorithm processes the object array and sorts them using the objects compareTo method. For this assignment, the objects are being compared by their language name property. Once the data is sorted, it is the data is exported to a csv, SelectSortMethod.csv and InsertionSortMethod.csv. The two methods are called in the main method.

Assignment Code

The assignment code was submitted as a zip file.

Assignment Testing

To test this assignment, each method was broken up into three parts, loading data, sorting the data, and exporting the data. Both sorting methods have the same process for loading data testing. The test checked if the data was loaded correctly into the array and that no error was thrown. This was done by printing out the array to see if it matches the text file. The second test checked the sorting algorithm for each method. The test printed out the processed array and was manually checked if it was in the right order, ascending and descending depending on the method. I then changed the data in the text file to semi random language names to retest the algorithm.

The final test was to take the sorted data and see if it correctly prints to a CSV file, with the right data and sorted according to the requirement. This was also done manually by opening the CSV file in Excel and comparing it to the data in the text file.

Assignment Evaluation

This was an interesting assignment for two reasons. I have used bubble sort and selection sort before, so trying a new iterative sort was fun. The second reason was that I got to learn how to export to a csv file. I have used csv files form numerous programs before, so making a program that exports a csv file was kind of cathartic. Exporting to a csv file was much simpler than I realized. Also making the selection sort method was easier since I have used that method before.

I did struggle with the insertion sort algorithm. The pseudo code provided in the text was a bit confusing and I had to try several times to get the desired results. I can't think of any improvements to the assignment as the requirements were straightforward and has no user interaction. At the end, the assignment was simple but helped understand two important aspects of programing, iterative sorting and exporting to csv.