Overview

Exercise\_18\_6 shows a bubble sort algorithm and allows the user to record the times in a text document that is saved in the debug bin folder. Bubblesort is an inefficient sorting algorithm because it is O(n2), which means the more it sorts the amount time it takes to sort the list grows exponentially. Bubblesort is O(n2) because every time a new member is added to the set the algorithm has to run another iteration and adds an extra step to every iteration before it.

### PROCESSING LOGIC

App Logic:

1. The program creates a bunch of pseudo-random integers and bubble sorts them using nested loops.
2. Bubblesort Algorithm:
   1. For every integer in the list, if nx > nx + 1 swap the numbers
   2. If numbers were swapped, return to step a.

### DATA (INPUT/OUTPUT)

Input: string

Output: .txt file

### COMPONENTS (SOURCE CODE NAMES, CLASSES, METHODS)

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| **Program** |
|  |
| -Main(string[]): void  Static bubbleSort(int[]): int  Static bubbleSortList(int): String |

### TESTING

Scenario 1 – Basic Test

Steps to test:

1. Start program
2. Enter file name: Test7
3. Read results
4. Exit program

Expected reaction:

For the program to successfully bubblesort the lists of integers and display the time it takes to process each bubblesort. The user should be able to observe the O(n2) nature of the bubblesort.

Actual result:

Expected reaction was actual result. Program works.

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