Project 6: Sorting

1) I created two sorting algorithms to show that I can sort data. The first sorting algorithm uses the Bubbles algorithm to sort any list of integers from the lowest numerical value to the highest numerical value. This algorithm is explained within the docstrings of my program. The second algorithm uses the selection sorting algorithm to arrange the data from lowest to highest. An extra function that I also included was a timer that computed the total time it takes to run each algorithm per array size, and then created a plot of array size concerning time. All the functions explained here can be found within the file *assign_6.py*.

2) The execution of the sorting algorithm using just 100 elements can be found within the Python file *main.py*.

3) I did not implement GUIs for this assignment. It would be more important to look at the efficiencies of the algorithms.

4) Some useful tests for this assignment are checking to see if each algorithm effectively organizes each array from smallest to largest value. To implement this, I created two test functions. Each one compares the sorted array to Python's native sorting algorithm method to see if the two arrays are identical.

5) The tests were implemented in the file assign_6_test.py

6) Here is the evidence of the following test:

```
PS C:\Users\kyleg\OneDrive\Desktop\CS162\Assign_6> pytest assign_6_test.py -v
============================= test session starts =============================
platform win32 -- Python 3.10.6, pytest-8.2.0, pluggy-1.5.0 -- C:\Users\kyleg\AppData\Local\Programs\Python\Python310\python.exe
cachedir: .pytest_cache
rootdir: C:\Users\kyleg\OneDrive\Desktop\CS162\Assign_6
plugins: anyio-3.6.1
collected 0 items

============================= warnings summary ==============================
..\..\..\..\AppData\Local\Programs\Python\Python310\lib\random.py:370: 4000 warnings
  C:\Users\kyleg\AppData\Local\Programs\Python\Python310\lib\random.py:370: DeprecationWarning: non-integer arguments to randrange() have been deprecated since Python 3.1
0 and will be removed in a subsequent version
    return self.randrange(a, b+1)

-- Docs: https://docs.pytest.org/en/stable/how-to/capture-warnings.html
======================== 4000 warnings in 0.76s =========================
PS C:\Users\kyleg\OneDrive\Desktop\CS162\Assign_6>
```

No failures occurred, but some warnings in regards to how the syntax of one of my functions will change in the future. Specifically, with the module Random:

"*DeprecationWarning: non-integer arguments to randrange() have been deprecated since Python 3.10 and will be removed in a subsequent version*
return self.randrange(a, b+1)"