Assignment 4: Testing
Software Engineering for Scientists

Objectives: Become familiar with frameworks for functional tests and unit tests. Learn to develop tests that cover normal and error-producing behavior.

This assignment will build off of the work done in Assignment 3, so use the same repository.

Tasks:

1. In `my_utils.py` add new functions for finding the mean, median, and standard deviation of an array of integers.
2. Create a new file `test_my_utils.py` in your unit test director.
    a. Add unit tests for the functions in `my_utils.py`
    b. For each function, make sure to include:
        i. Randomness in your tests.
        ii. Positive and negative test cases.
3. Add a command line argument to `print_fires.py` that, if given, specifies what operation (i.e., mean, median, or standard deviation) to perform on the returned values. If this argument is not given, then just print the returned values as before.
4. Create a functional test file called in `test_print_fires.sh` in your functional test directory that uses the Stupid Simple Bash Testing framework.
    a. Create a test data file that is a small subset of the full data sets and includes lines from the files that will yield interesting results (NOTE: this file will be checked into your repo)
    b. Write functional tests for `print_fires.py` that use this test file.
    c. Include functional tests for exit codes.
    d. Include functional tests for the different operations.
5. Make sure all work follows best practices.
6. Add a few lines to the README that summarize your changes.
7. Create a release from master tagged as 3.0