COMPSCI 590N: Assignment 6

Due: October 23, 2017 at 11:55pm

Please modify `testing.py` as instructed and submit a **zip** file containing your your modified version of `testing.py` as well as a **PDF** containing all responses to Problem 1.

Problem 1: Debugging

The file `debugging.py` contains code that searches a piece of text for all instances of a search string. Please use `pdb` to answer the following questions with modifying `debugging.py`.

1. What are the names of the local variables defined at line 16? (hint: use dir())

2. What is the value of the variable `pattern_length` at line 16?

3. What is the value of the variable `search_index` the first time line 23 is executed?

4. What is the value of the variable `text_index` the second time line 23 is executed?

5. What is the value and type of the variable `offests` at line 29 when the variable `text_index` has the value 377?

Problem 2: Testing and Documentation

The file `testing.py` contains a function called `merge_sort` that takes a list of numbers and returns a sorted list. Please use the `unittest` module to add two separate tests for this sorting algorithm. You may choose any input/output pairs to test and may use any of the custom assertions to test the outputs from `merge_sort`.

Once you have written the two test functions. Please describe each test function in an associated `docstring`. For example, if you were to call your Test Case class **MergeSortTester** and name one of the test functions `test1`, running

```
>>> from testing import *
>>> help(MergeSortTester.test1)
```

should print a description of the test in `test1`.