

Bug/progress report

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I focus on testing the data structure single Linked List. There are basic two types of linked lists, including single and double linked lists. In my project, I would like to test the single linked list first, if I can test the single Linked List efficiency, I will also test double Linked List.

I have not found any bug in the Linked List python library so far. There are many possible reasons. First, the Linked List data structure is simple and standard. In our university, the data structure course opens for sophomore students; I also have taken the class before. The idea of Linked List data structure is easy to understand. The main idea of the data structure is to get the next memory address by the pointer. The pointer in C programming language is difficult than in python. If the writer who designs the Linked List data structure library is familiar with pointer, the library almost has not any bug. Second, it is hard to find bugs because I test some basic functions. If the python library has these basic bugs, it means that the python library is useless.

The SUT is a source language of the software under test for TSTL to support most operations. I have not found any bug so far, so I think that the quality of the source code has average quality. There are fifteen functions in source code, and I have already test three of these functions. The first and basic function I test is to insert a value. This is a basic and main function in Linked List. If this source code had a bug in this function, it means that this source code had not any quality. The Second function is to add values in the end of the list. This function also does not be found a bug. The third function I test is to return the correct index what we are looking for the data. This function also has not show a bug. Thus, this source code has an average quality.

In addition, I have display the coverage of tested code here too. The coverage means how much percentage codes of source code have been tested in TSTL. From coverage.out file, it shows the coverage of code is 5.3 percent, as shown in the following figures. In the final report, one of my goals is to increase coverage. Thus, I will still test more functions to improve coverage. I would like to test 5 more functions in the final report.

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5.38461538462 PERCENT COVERED
0.851750850677 TOTAL RUNTIME
40 EXECUTED
4000 TOTAL TEST OPERATIONS
0.65941286087 TIME SPENT EXECUTING TEST OPERATIONS
0.138932228088 TIME SPENT EVALUATING GUARDS AND CHOOSING ACTIONS
0.00294709205627 TIME SPENT CHECKING PROPERTIES
0.662359952927 TOTAL TIME SPENT RUNNING SUT
0.0185887813568 TIME SPENT RESTARTING
```

0.0 TIME SPENT REDUCING TEST CASES

16 BRANCHES COVERED

10 STATEMENTS COVERED

10-249-159-152:generators Chiaoybaby\$ python

10-249-159-152:generators Chiaoybaby\$ cat coverage.out

Name	Stmts	Miss	Branch	BrPart	Cover
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Missing

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LinkedList_Single.py	176	166	84	0	5%	7-8, 12-13, 16-30, 33, 42-207
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In the future works, I attempt to test other functions call in Linked list python library. I am curious the return index function that I have already tested this function. The purpose of this function is to find the index of data in which one. If it can find the data, it returns the index of data. If it cannot find the data in the Linked List, it returns none. If we have two indexes have the same data, what is the return? I will test this in one of my future works. In addition, I will also test more functions in my future works.