Hyrum Johnson

Assignment 7

1. Have you worked with more than one partner yet? Remember, you are required to switch at least once this semester.

   A) I have only worked with one partner and I was not able to find a partner for this assignment so i worked alone.

2. In the LinkedListStack class, the stack data structure is implemented using a doubly-linked list. Would it be better to use a singly-linked list instead? Defend your answer.

   A) No way, Because we are using the doubly-linked list that allows us to use functions like .clear(), .size(), .getLast(), .removeLast() and .addLast(). This will speed the functionality and programming time of the LinkedListStack.

3. Would it be possible to replace the instance of DoublyLinkedList in the LinkedListStack class with an instance of Java's LinkedList? Why or why not?

   A) No, It would be nice if java had a import for a DoublyLinkedList. But java only has a LinkedList import and that is not the same as DoubleyLinkedList. Like I answered in question one. Using DoubleyLikedList allows you to have access to more functions and methods that you can use with a linkedList.

4. Comment on the efficiency of your time spent developing the LinkedListStack class.

   A) The LinkedListStack class was super easy and fast. This is the exact reason why you use doubly linked lists when possible. I probably only spent 2 min on this class.

5. Note that the line and column number given by BalancedSymbolChecker indicate the location in a file where an unmatched symbol is detected (i.e., where the closing symbol is expected). Explain how you would also keep track of the line and column number of the unmatched opening symbol. For example, in Class1.java, the unmatched symbol is detected at line 6 and column 1, but the original '(' is located at line 2 and column 24.

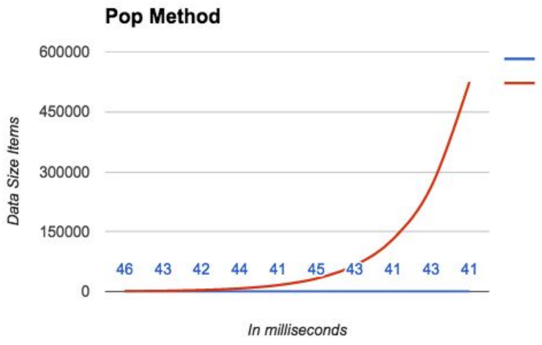
   A) Well to keep track of the line and column number of the unmatched opening symbol I would create new variables called something like newLine and newColumn then set the values with the location that the symbol is on. Then if i need to know what the location is of the symbol I could just return symbol.newLine and NewColumn. After thinking about it I would probably set it up as a function. That I could call whenever I needed it. This is how Java IDE’s are today. And they return the location of the miss match symbol.

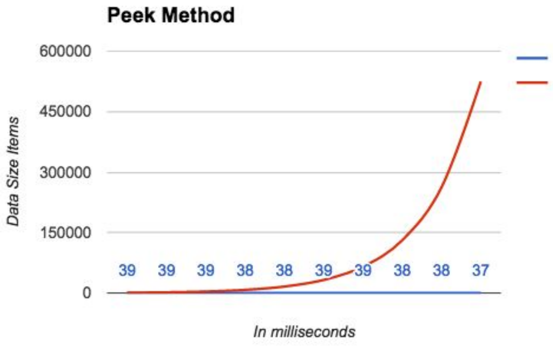
6. Collect and plot running times in order to determine if the running times of the LinkedListStack methods push, pop, and peek are O(1) as expected.

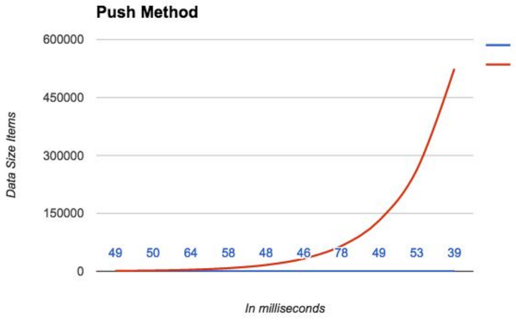
   A) See Graphs Below. The red line is the data size and the blue line at the bottom is the time in milliseconds. As you can see the time is in O(N) as expected. The problem was getting a graph that represented this the right way. I hope this works.

7. How many hours did you spend on this assignment?

A) I spent about 14 hours on this assignment.


Pop Method
Data Size Items
In milliseconds


Peek Method
Data Size Items
In milliseconds


Push Method
Data Size Items
In milliseconds