Stack Topics

Chapter 3

Chapter 2

Section 2.5 Introduction to Linked List

1. Getting practice with the use of LL is important in implementation, application and abstract programming (at all 3 levels)
2. So far in terms of the Operations on LL we have seen just traversal and insertion at beginning. Meaning we will later go over insertion elsewhere in the list and deletion.
   1. Discuss the challenges of Problem 4 from homework...this was really challenging!

Section 3.1 Stack logical design

1. When to design our own Stack ADT or else to make use of some pre-existing Stack in Java if it exists and does it?
2. Assuming we want to design our own Stack, then we have to make decisions about how detailed in terms of # of methods for the class and features, e.g. top, pop, push may not be enough we may also want peek.

Section 3.2 Collections

1. Why are collections important? Is it relevant to a stack? Obviously generic interface is! However the book mentions collections will be useful for sorting and compareTo later.
2. What exactly is the Java Collections Framework, and how to be familiarizing more with pre-existing classes or libraries?

Section 3.3 Exceptions

1. From the programm design standpoint of ADT is error detection meant to be in interface always before implementation?
2. Detecting exceptions, throwing e.g. StackOverflow, or handling (if/else,try/catch).
3. When to use RuntimeException and when Exception class is the choice?
4. What are the naming conventions for exception classes?

Section 3.4 Formal Stack Specification

Notes about Linked List

Traversal

In traversal the currNode is initialized pointing to the list’s beginning node

And then using the getLink() can traverse node to node until the final node

At the end or final node the algorithm sets it to null (currNode: null)

Traversal Implementation

In StringLog the methods for size(), conains() and toString() all traverse the linked list

Insertion at Beginning

This is a two step process: creating a new Node and then moving the reference for the list

When creating the node making sure to set the link to the beginning node

The reference move (afterwards...matters) is critical for the addition to work

**NOTE: diagrams are very useful when making changes to the references**

Deletion