**Programming Assignment #3**

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October 9, 2015

**Design:**

This program was designed to implement three recursion functions as well as to create a Linked List class to store BookNode objects. The recursion functions did not use any data structures; the BookList class used a linked list to store the books. The three recursion functions were (1) a factorial function, (2) a function that reverses the digits of an integer, and (3) an exponent function. The linked list was used to read in 13 books from a file and then do various functions with the list, such as adding/deleting books, destroying, and printing the list.

**Implementation:**

The recursion functions were implemented one at a time, with ample testing between functions. For the second part of the assignment, the BookNode class was written and tested before the BookList class was implemented. The BookNode class had regular getter/setter functions as well as a print function to output the characteristics of each book. It was implemented using the Book class from assignment 1 as the sample code; it was extended by adding a pointer to the next BookNode.

**Testing:**

The assignment compiled using Netbeans 8.0.1 on Linux Mint. For the recursive functions, the normal inputs consisted of positive integers. Border cases included 0, negative integers, very large integers (so as to cause integer overflow), and floats.

**Summary:**

Overall, the assignment was a success. The BookList class allows the user to do various tasks with the list, such as adding books, deleting books, and destroying the whole list. The assignment took eight days to complete.