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Assignment 3 - Tower of Hanoi Program Writeup

The results obtained in the lab were identical using either the recursive way and stack implementations of the pegs, manipulating the disks to the rules of the game. A tabular format was produced during each of the implementations with the moves along with the disks being moved being displayed the same way. The recursive method required only a few lines to implement the game due to it using the call stack efficiently. For each function call it was able to step through each n-1 disks, transferring it over to temporary peg c until the last disk n was moved to the final peg b. Then it recursed stepping back up and transferred the disks from peg c over to peg b. Each call calls itself twice unless it recursed a total number of disks n meaning that it's complexity would be O(n^2). It is easier to keep track of what is being manipulated and the disks going from one peg to another as the function calls end in the recursive method. As for the stack implementation, a call stack is mimicked through use of dynamically allocated stack on heap. This method was more time consuming and complex as checks were required on each peg to enforce the rules of the game and it was therefore more difficult to keep track of the pegs being allocated dynamically and disks as they were moved.