**3.4 (5th Edition)**

In the classic problem of the Towers of Hanoi, you have 3 towers and N disks of different sizes which can slide onto any tower. The puzzle starts with disks sorted in ascending order of size from top to bottom (i.e., each disk sits on top of an even larger one). You have the following constraints:

(1) Only one disk can be moved at a time.

(2) A disk is slid off the top of one tower onto the next rod.

(3) A disk can only be placed on top of a larger disk.

Write a program to move the disks from the first tower to the last using Stacks.

**4.3 (5th Edition)**

Given a sorted (increasing order) array with unique integer elements, write an algorithm to create a binary search tree with minimal height.

**4.4 (5th Edition)**

Given a binary tree, design an algorithm which creates a linked list of all the nodes at each depth (e.g., if you have a tree with depth D, you'll have D linked lists).

**4.7 (5th Edition)**

Design an algorithm and write code to find the first common ancestor of two nodes in a binary tree. Avoid storing additional nodes in a data structure. NOTE: This is not necessarily a binary search tree.

**9.4 (5th Edition)**

Write a method to return all subsets of a set.

**9.5 (5th Edition)**

Write a method to compute all permutations of a string

**9.6 (5th Edition)**

Implement an algorithm to print all valid (i.e., properly opened and closed) combinations of n-pairs of parentheses.

**9.9 (5th Edition)**

Write an algorithm to prim all ways of arranging eight queens on an 8x8 chess board so that none of them share the same row, column or diagonal. In this case, "diagonal" means all diagonals, not just the two that bisect the board.

**11.2 (5th Edition)**

Write a method to sort an array of strings so that all the anagrams are next to each other.

**11.3 (5th Edition)**

Given a sorted array of n integers that has been rotated an unknown number of times, write code to find an element in the array. You may assume that the array was originally sorted in increasing order.

**17.7 (5th Edition)**

Given any integer, print an English phrase that describes the integer (e.g., "One Thousand, Two Hundred Thirty Four").

**17.8 (5th Edition)**

You are given an array of integers (both positive and negative). Find the contiguous sequence with the largest sum. Return the sum.

**17.13 (5th Edition)**

Consider a simple node-like data structure called BiNode, which has pointers to two other nodes. The data structure BiNode could be used to represent both a binary tree (where nodel is the left node and node2 is the right node) or a doubly linked list (where nodel is the previous node and node2 is the next node). Implement a method to convert a binary search tree (implemented with BiNode) into a doubly linked list. The values should be kept in order and the operation should be performed in place (that is, on the original data structure).