CS2302 - Data Structures

Spring 2018

Lab # 4

B-trees

Deadline: Friday, March 9, 11:59 p.m.

Download the code that implements B-trees and extend it in the following ways:

1. (50 %) Using the *draw_tree* method for binary search trees as guide, write a method to display a B-tree given a reference to its root.
2. (50 %) Write methods that perform the following operations:
   - (a) Extract the items in the B-tree into a sorted array.
   - (b) Return the minimum element in the tree at a given depth d.
   - (c) Return the maximum element in the tree at a given depth d.
   - (d) Return the number of nodes in the tree at a given depth d.
   - (e) Print all the items in the tree at a given depth d.
   - (f) Return the number of nodes in the tree that are full.
   - (g) Return the number of leaves in the tree that are full.
   - (h) Given a key k, return the depth at which it is found in the tree, of -1 if k is not in the tree.
   - (i) Given a key k, print all the keys that are in the same node as k.

As usual, write a report describing your work.