CSL 106: Data Structures and Algorithms

Assignment 4

Date of Submission: 23 October 2018

Q1. Show the results of inserting the keys F, S, Q, K, C, L, H, T, V, W, M, R, N, P, A, B, X, Y, D, Z, E in order into an empty B-tree with minimum degree 2. Draw (only) the configurations of the tree just before some node must split and the final configuration.

Q2. Explain how to find the minimum key stored in a B-tree and how to find the predecessor of a given key stored in a B-tree.

Q3. Suppose that we were to implement B-TREE-SEARCH to use binary search rather than linear search within each node. Show that this change makes the CPU time required O (lg n), independently of how *t* might be chosen as a function of n.

Q4. Draw two different 2-3 trees, both containing the letters A through G as key values.

Q5. Write pseudo code for B-TREE-DELETE.

Q6. Solve the DS-lab-08-as and submit your code.

Q7. Solve Problem# 18-2 from the textbook by Cormen et.al.

Q8. Solve Problem# 13.4-3 from the textbook by Cormen et.al.

Q9. Solve Problem# 13-2 from the textbook by Cormen et.al.