CS315: Assignment 2

Total Marks: 100
Due on: 1st April, 2015, 11:59pm

This assignment is to help understand the basics of data-partitioning indexing using B+-trees.

Implement a B+-tree. Assume that the space is constrained to [0, 1].

Ensure that it can support insertions. (Deletions may be ignored.)

The configuration for the B+-tree must be read from bplustree.config. It contains a single value which is the maximum number of keys a node can have. Keep this parameter a variable. You may have to change it at runtime, and rebuild the tree.

Use the file assgn2_bplus_data.txt to inject the points. It contains 10^6 points.
Use the file querysample.txt to read the queries. The queries have the following formats:

Operation	Code	Details	
Insertion	0	Point	
Point Query	1	Point to Search	
Range query	2	Query center	Range

Ensure that the implementation is truly disk-based and not simulated. Enable the program to output timing results string from the reading of a query to solving it. Do not include the time to print it.

Report the following times for both the structures and for each type of operation: (i) minimum, (ii) maximum, (iii) average, (iv) standard deviation.
What do you conclude?

Submit the program and the answers through the submission portal only. You must name your submission studentno_assgn2.zip. Please ensure that the code repository submitted is “cleaned up” before final submission. Also it is mandatory to include a README file with your submission.

We will evaluate the program by running a query file with the same format as the sample one. Marks will be deducted for wrong answers.