Written Homework 2

Due: 11월 9일 오후 9시

In class, we discussed the *height* of a binary search tree is an important measure of its efficiency of searching. This homework deals with a few related questions.

Use the code for HW5, together with properly completed `add()`, and write a program to perform the following experiment that estimates the average height of BST, for $N = 50, 100, 200$ and 500:

(a) Generate N random data using the standard C library function `rand()`.

(b) Insert the generated data into a BST, and obtain the height of the resulting BST, whose height must be between $\lg N$ and $N - 1$.

(c) Repeat Step (b) many times, e.g., ten thousand or one million times. And calculate the average of results. Estimate the probabilistic distribution of the heights of resulting BSTs.

(d) Present your program and discuss your experiment result, and submit as a pdf file using "`submit dsta whw2(a|b)`".