

Final Exam ADS-2

Objective : Put/Get ratio

To Determine empirically the ratio of the amount of time that BST spends on put() operations to the time that it spends on get() operations when FrequencyCounter is used to find the frequency of occurrence of values in 1 million randomly-generated integers.

Abstract:

A symbol table is a data structure that is used as an alternative to most other naive data structures to enhance searching and sorting techniques. To enhance the insert operation we have the put() which is an analogue to inserting in an array. Following the same analogy we have an analogue to searching in a symbol table which is get() operation. To understand the versatility of using a symbol table and its features I have highlighted below the analysis of p/g ratio, which gives a number that gives us the insight into how easy it is to put and get in a symbol table as compared to an array.

Analysis:

The put() and get() operations are similar to insert and search operations in an array. To understand and compare the two operations amongst each other, the following document elucidates the performance further.

FrequencyCounter in the program is used to find the frequency of occurrence of values in 1 million randomly-generated integers.

Number of Keys	Running Time Put	Running Time Get	Ratio
1000000	0.54	1.09	0.50

Final Verdict:

put() operation is simply an insert operation into the symbol table whereas the get() operation get the value associated with a particular key, so it needs to validate the key first and get the value of that key.

Based on the above table, the get() operation takes twice the time it takes to perform put() operation.

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