

CSSE 230, Winter 2023/24, Comparative Evaluation of Key Data-structures

Category	BST	AVL	TDRB
Worst-case insert/remove	N	$\log(N)$	$\log(N)$
Best-case insert/remove	1	$\log(N)$	$\log(N)$
Average-case insert/remove	TBA	$\log(N)$	$\log(N)$
Lopsidedness <sup>1)</sup>	N:1	2:1	2:1
# rotations: insert	N/A	1	$(h+1)/4$
# rotations: remove	N/A	$h/2$	h
Avg. # rotations on insert	N/A	468,588	395,276
Avg. # rotations on remove	N/A	270,038	2,951,428
Height of 2 Mio	419	24	26
Potential <sup>3)</sup> of 2 Mio	29	20.38	20.45
Inserting 1 Mio Into 1 Mio	763	807	655
Removing 1 Mio in 2 Mio	912	911	930
Finding 1 Mio in 2 Mio	733	605	538

<sup>1</sup> Largest ratio of longest path length to a null node to shortest path length to a null node.

<sup>2</sup> Creating an iterator 1 Mio times in 2 Mio tree returning first 5-100 elements, number of elements determined at random.

<sup>3</sup> Average number of nodes visited from root to any of the nodes.

NOTICE: All data was generated with all apps closed, except for Eclipse.