

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

| Category                         | BST | AVL    |
|----------------------------------|-----|--------|
| Worst-case insert/remove         | N   | Log(N) |
| Best-case insert/remove          | 1   | Log(N) |
| Average-case insert/remove       | TBA | Log(N) |
| Lopsidedness <sup>1)</sup>       | N:1 | 2:1    |
| # rotations: insert              | N/A | 1      |
| # rotations: remove              | N/A | h/2    |
| Avg. # rotations on insert       | N/A | 468588 |
| Avg. # rotations on remove       | N/A | 270038 |
| Height of 2 Mio                  | 419 | 24     |
| Potential <sup>3)</sup> of 2 Mio | 29  | 20.38  |
| Inserting 1 Mio Into 1 Mio       | 763 | 807    |
| Removing 1 Mio in 2 Mio          | 912 | 911    |
| Finding 1 Mio in 2 Mio           | 733 | 605    |

<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.