Binary Search Trees = Upper Bound

“Binary search trees solve predecessor search”

=> my work ≤ Complexity of predecessor ≤ O(lg n)/operation

“Augmented binary search trees solve partial sums”

=> my work ≤ Complexity of partial sums ≤ O(lg n)/operation

Preprocess T = { n numbers }

pred(q): max { y ϵ T | y < q }

predecessor search

partial-sums problem

Maintain an array A[n] under:

update(i, Δ): A[i] = Δ

sum(i): return A[0] + ... + A[i]