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CSCI 264
Homework 2

Problem 2

a) $T(n) = \begin{cases} O(1) & \text{if } n = 1 \\ 2T(n/2) + O(1) & \text{if } n > 1 \end{cases}$

b) $T(n) = 2T(n/2) + c = 2(2T(n/4)+c) + c = 4T(n/4) + 2c + c = 4T(n/4) + 3c$

$= 4(2T(n/8) + c) + 3c = 8T(n/8) + 7c = 8(2T(n/16) + c) + 7c = 16T(n/16) + 15c$

For k iterations: $T(n) = 2^k T(n/2^k) + (2^k - 1)c$

When $k = \log n$: $T(n) = 2^{\log n} T(n/2^{\log n}) + (2^{\log n} - 1)c$

$= nT(1) + (n-1)c$

$\leq c \cdot n + c \cdot n - c$

$= O(n)$

c) Maxsum -

Left Aligned Maxsum - I don't know :(

Right Aligned Maxsum -

Sum - the total sum of all integers in A between A[left] and A[right]