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Com S 311

4 May 2021

Extra Credit Homework

Example

Array A: {10, 30, 20, 50, 70, 55, 65, 25, 45, 85, 15, 90, 75, 60, 35, 80, 95, 40}

Index: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

Array B: {45, 65, 20, 10}

Index: (9) (7) (3) (1)

Algorithm:

findLastNodes(int tree[]) { //where tree is the array holding the complete tree and B is the array to update which is returned

int i = 1, n = tree.length; //c1 = 1

int j = math.sqrt(n); //c2 = 1

int B[j]; //c3 = 1

B[j--] = tree[i]; //c4 = 1

while(i < n) { //c5 = logn

int temp; //c6 = 1

if( (2\*i) < n) { //c7 = 1

temp = 2\*i; //c8 = 1

if( (2\*i)+1 < n) { //c9 = 1

temp = 2\*i + 1; //c10 = 1

}

If(temp\*2 < n) { //c11 = 1

B[j] = tree[i]; // c12 = 1

J-- // c13 = 1

i = temp; //c14 = 1

}else { //c15 = 1

Int parent = math.floor(n/2); //c16 = 1

B[j] = tree[parent]; // c17 = 1

i = n; // c18 = 1

}

Return B; //c19 = 1

}

5 + (logn + 13) => O