Segment Tree

I did not put enough text on this slide. Please see these articles for more description.
=> https://cp-algorithms.com/data_structures/segment_tree.html
=> http://www.shafaetsplanet.com/?p=1557

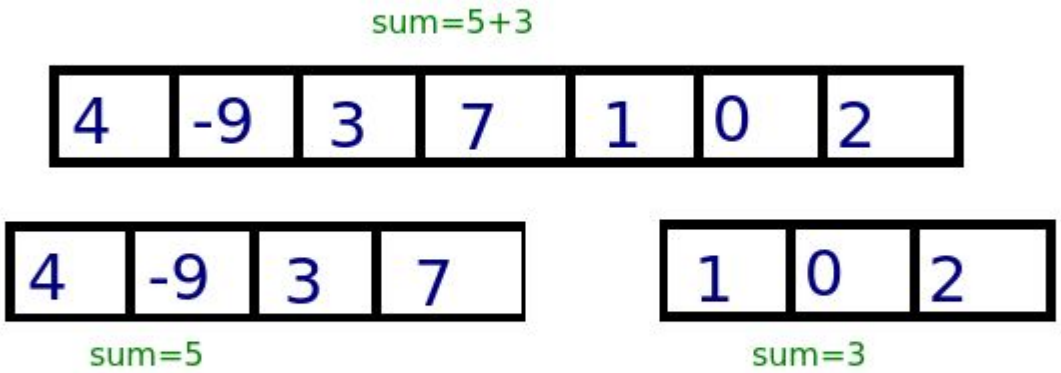
Why we need to learn the segment tree...?

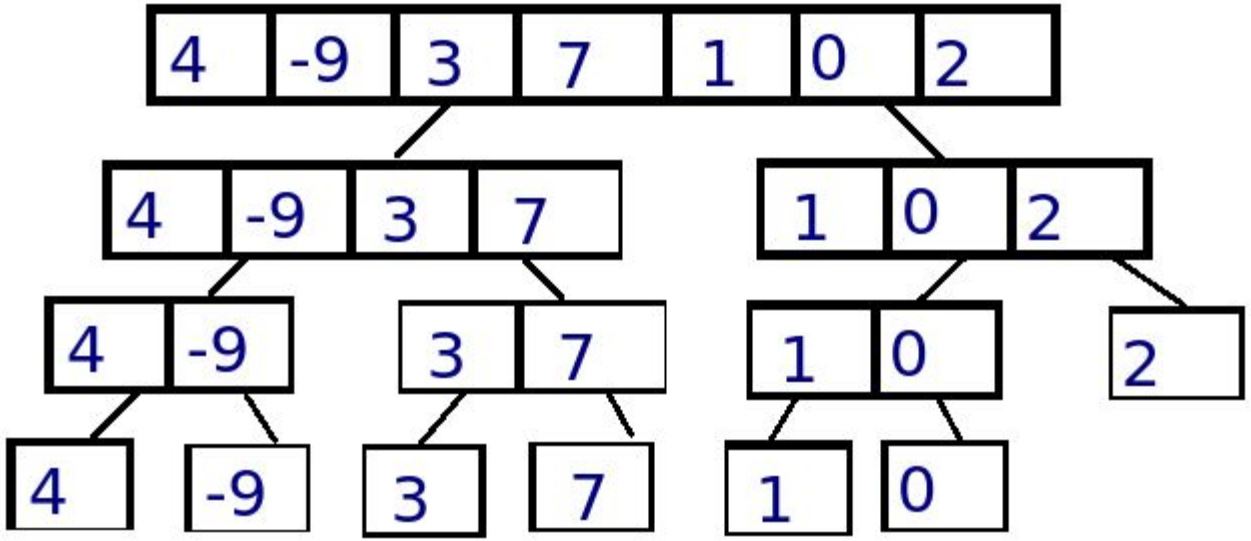
Let's take an example. Here we have an array of n elements, and some queries.

arr[]={4, -9, 3, 7, 1, 0, 2}

Query: We need to find the sum of the elements from the i-th index to j-th index

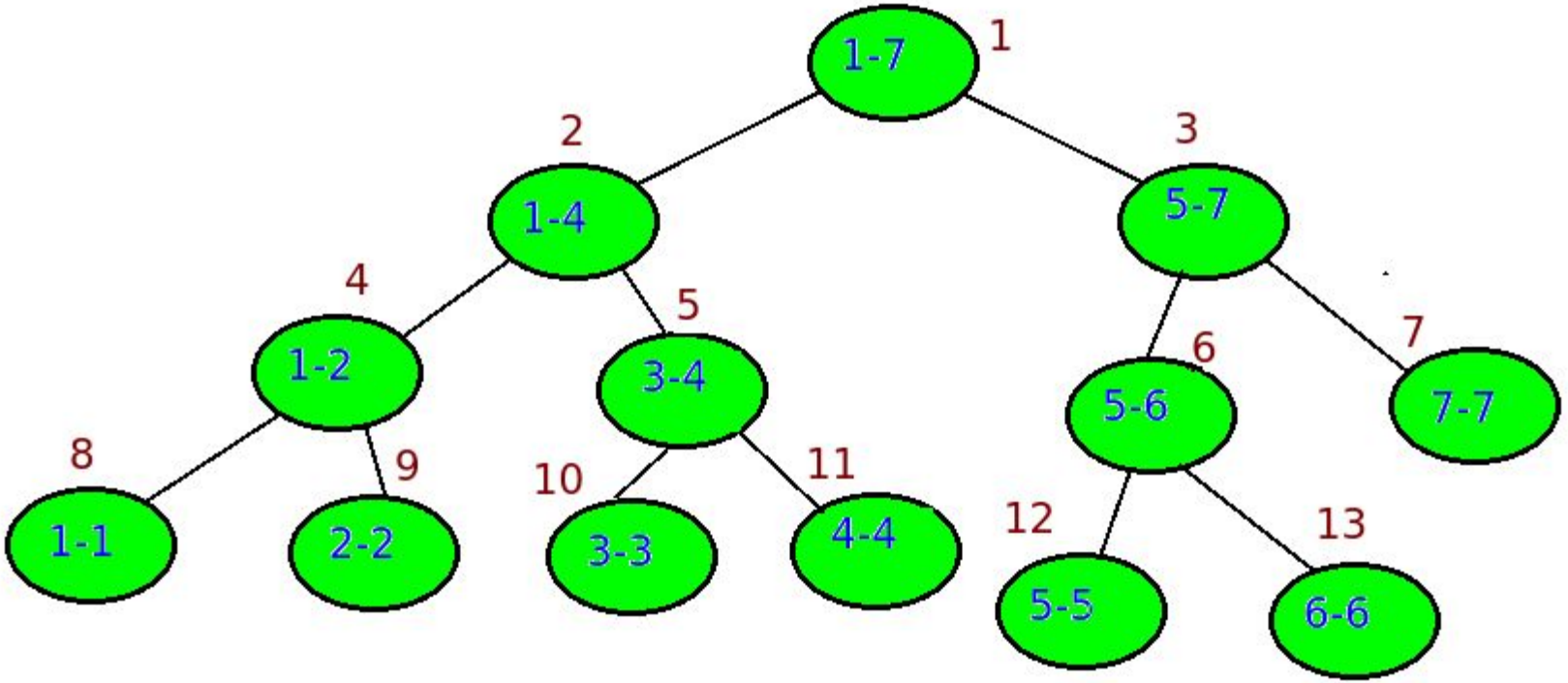
Update: Update the i-th index element to x

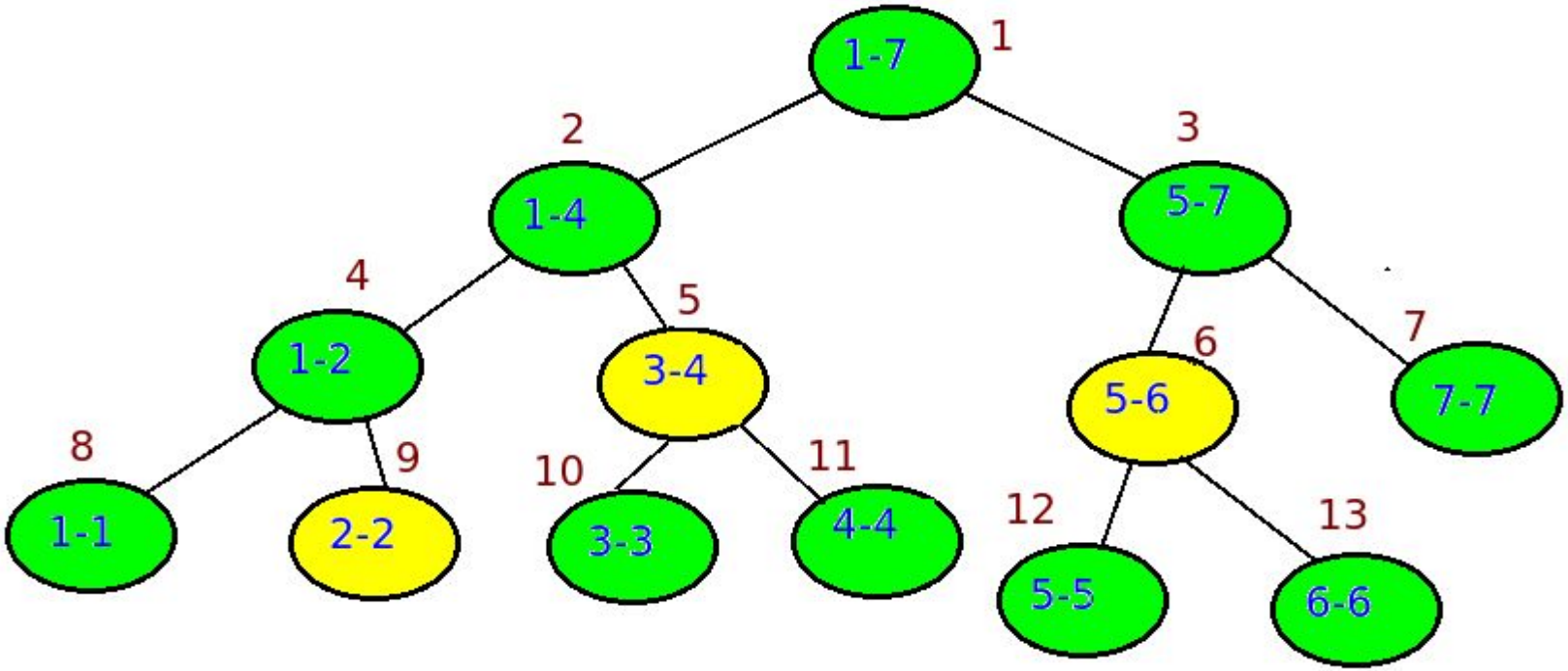

sum=5+3
4
-9
3
7
1
0
2
4
-9
3
7
sum=5
1
0
2
sum=3

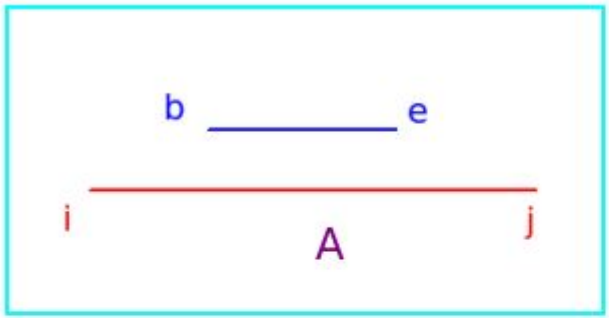


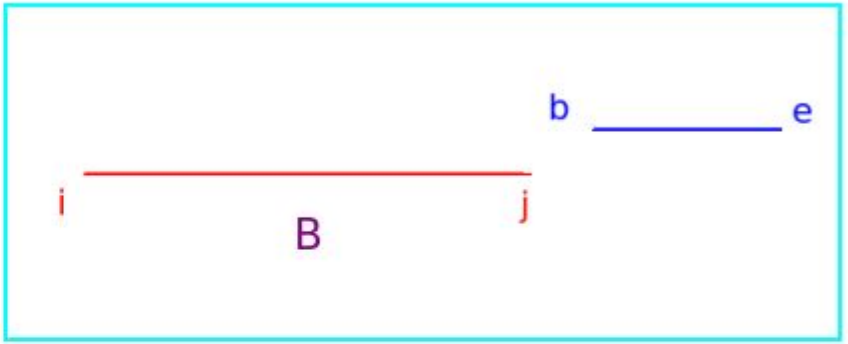
Sum of a segment=sum of (Left segment + Right segment)

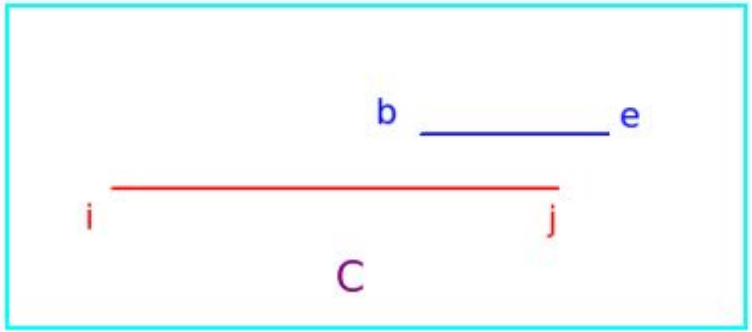
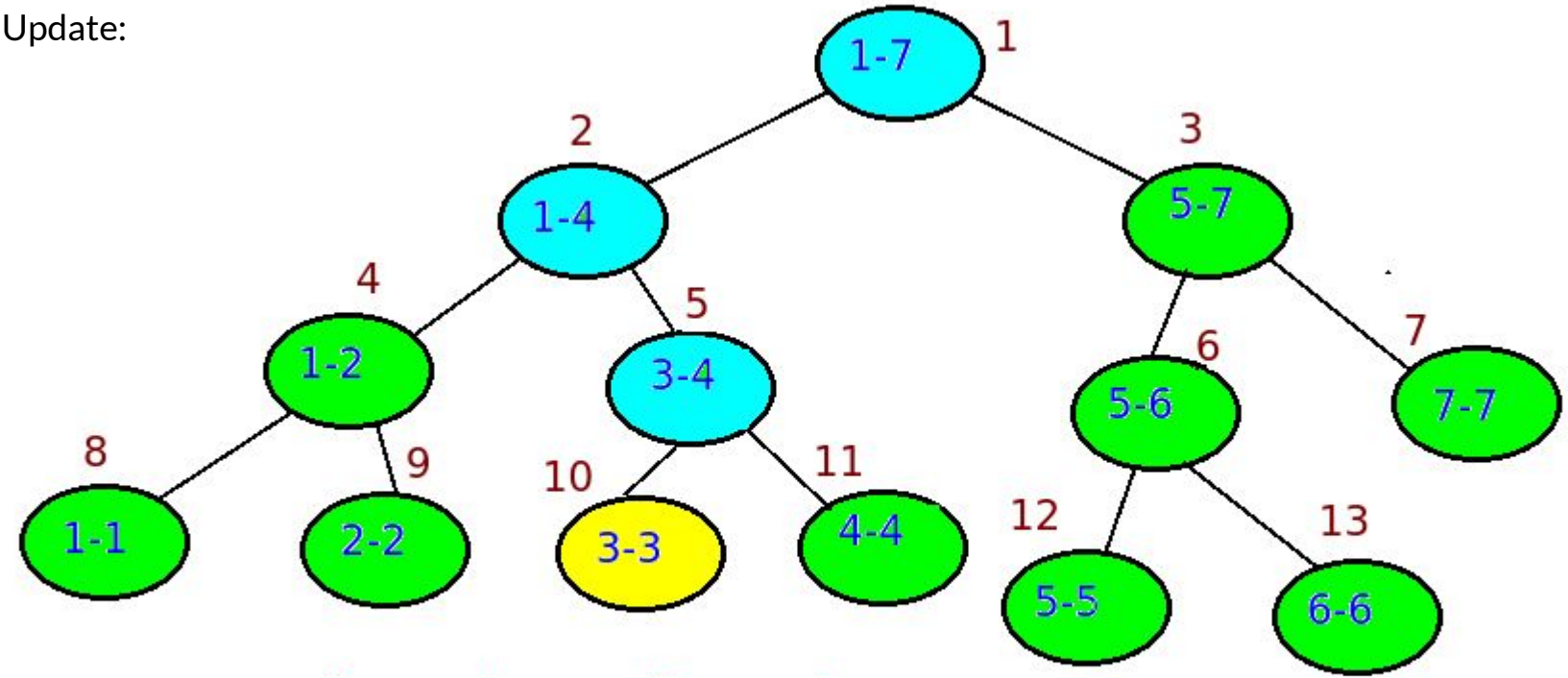
Sum of a leaf = value of that leaf


1-7
1
2
3
1-4
5-7
4
5
6
7
1-2
3-4
5-6
7-7
8
9
10
11
12
13
1-1
2-2
3-3
4-4
5-5
6-6


1-7
1
2
3
1-4
5-7
4
5
6
7
1-2
3-4
5-6
7-7
8
9
10
11
12
13
1-1
2-2
3-3
4-4
5-5
6-6


b
e
i
j
A


b
e
i
j
B


b
e
i
j
C

Update: