Use tree set & Tree map for task a and b

Subset, submap

Subset C & D

Rank avl tree

Subset & Size in log n time

Subset(20…65) = 6 – 1 = 5

Rank(20) = 1 (lgn time)

Rank(65) = 6 (lg n time)

Update size → size of left + itself + right

Rank = left size + 1

DO not store rank, just store size

<https://stackoverflow.com/questions/26080924/computing-rank-of-a-node-in-a-binary-search-tree>

Don’t use the code

Graph:  
3 ways to store (Adjacent list, adjacent matrix, edge list) → Look at the pro and cons

Edge list for large number of vertices. Don’t use matrix → A lot of empty spaces

<https://visualgo.net/training?diff=Hard&n=20&tl=10&module=heap.bst.avl.ufds.graphds>

1. ExtractMax k times → click n-k smallest element
2. How many different BST can you form with distinct element (1/(n+1) x (2n C n)
3. Minimum number of vertices in AVL tree of n height? F(n) = f(n-1) + f(n-2) + 1. F(-1) = 0, f(n) =1