Haseeb

16L-5405

Data Structures
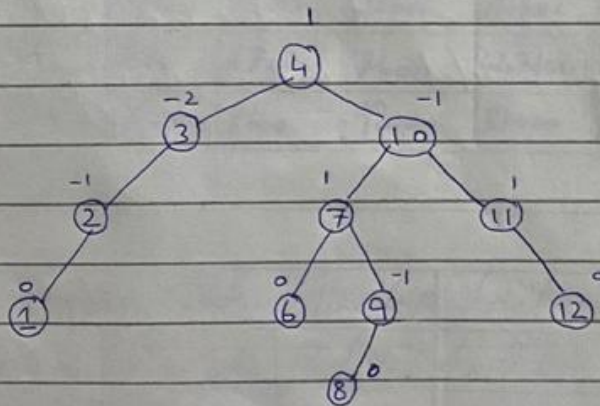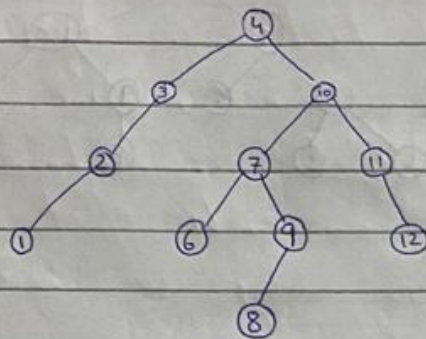
CS – C

Final Exam

Important Notes – Please review

- Attached are **question no # 1 , 3, 4 , 5 , 7**
- **Question 2 part a and question 6 .**cpp file is attached in folder
- **Question 2 part b and c** is attached in a separate word file
- **Question 4 part a** is in separate word file
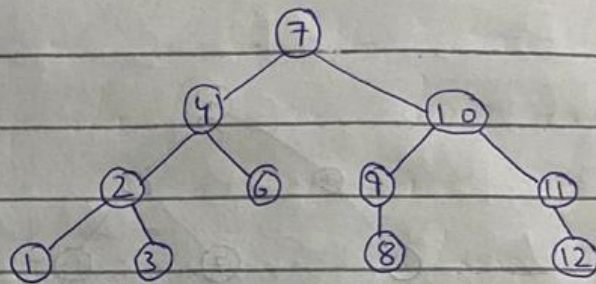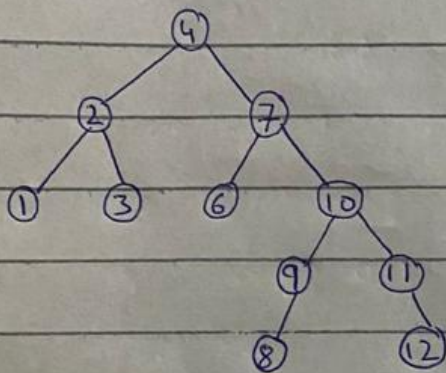- **Question 6 part c ->** time complexity is O(N)

Q.NO.7

a)

b)

Q . No. 5

a) Processor : Intel Core m3 1 o GHz
   RAM : 8 GB
   Cache : 4 GB
   Virtual Memory : 1329 MB

b)

INPUT SIZE	RECURSIVE SOLUTION			ITERATIVE SOLUTION		
	In ORDER	Pre-Order	Post-Order	In-Order	Pre-Order	Post-Order
10	2200	2300	2100	111500	122700	213900
50	6600	6700	7400	447100	415400	999000
500	9500	8600	9900	81000	785400	1793400

c)

Recursive Solution Time Comp			Iterative Solution Time Comp		
In-Order	Pre-Order	Post Order	In-Order	Pre-Order	Post-Order
$o(n)$	$o(n)$	$o(n)$	$o(n)$	$o(n)$	$o(n)$

Where n = number of Nodes.

d) The running time is linearly increasing
with the increase in input size.
Interative version algorithms are growing
faster as compare with the recursive
one. Run time of iterator is dependent
on machine state when machine state
is changed it effect its runtime.
however there is no such effect on
recursive that is why we have
better solutions of recurshe.

Q.NO.3

All codes are correct because all
values or any data use during
insertion.

Q.No. 1

(a)

Time Complexity Analysis of the function findTop Players $O(n^2)$.

(b)

It can be improved using **Merge Sort** and this technique is basically like divide and conquer technique. Merge sort first divides the array into equal parts/halves and then combines them in sorted manner. after that $O(n \log n)$ will be the complexity.
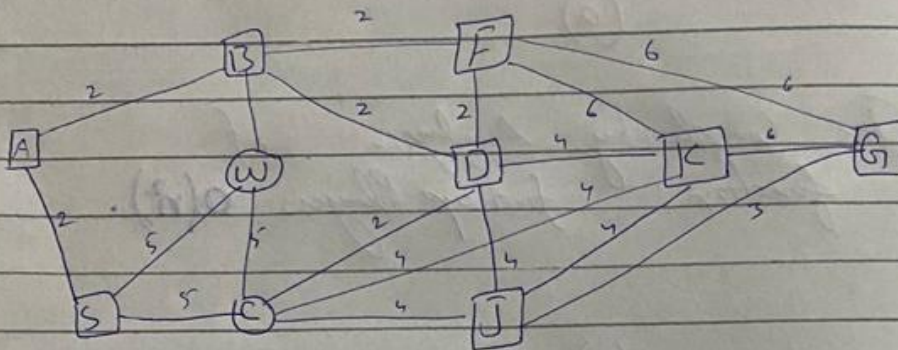
Q.NO. 4

c

(i)

(ii)

Yes, it is possible minimum spaning tree cost minimum free. Kurskal's algorithm use for this graph.

(b)

Yes it is possible to max spenning tree it one edge add then trial cost increases and also weight of final max spanning tree increases.

(a)

Attached FILE