E 1202 L - Data Structures and Algorithms

sup 1 MWF 1:30-4:30 PM

- Finals Part 1

Lauron, John Enrico BS CpE-1

1.) 31, 55, 13, 81, 64, 47, 20, 75 HSize = 11

i = 0

1. H(31) = (0+31) % 11 = 9
2. H(55) = (0+55) % 11 = 0
3. H(13) = (0+13) % 11 = 2
4. H(81) = (0+81) % 11 = 4
5. H(64) = (0+64) % 11 = 9 i++
6. H(64) = (1+64) % 11 = 10
7. H(47) = (0+47) % 11 = 3
8. H(20) = (0+20) % 11 = 9 i++
9. H(20) = (1+20) % 11 = 10 i++
10. H(20) = (2+20) % 11 = 0 i++
11. H(20) = (3+20) % 11 = 1
12. H(75) = (0+75) % 11 = 9 i++
13. H(75) = (1+75) % 11 = 10 i++
14. H(75) = (2+75) % 11 = 0 i++
15. H(75) = (3+75) % 11 = 1 i++
16. H(75) = (4+75) % 11 = 2 i++
17. H(75) = (5+75) % 11 = 3 i++
18. H(75) = (6+75) % 11 = 4 i++
19. H(75) = (7+75) % 11 = 5

Index	Value
0	55
1	20
2	13
3	47
4	81
5	75
6	
7	
8	
9	31
10	64

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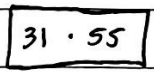
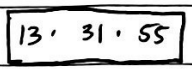
2.) 31, 55, 13, 81, 64, 47, 20, 75, 93, 50, 101 B-Tree ADT of order 5

1. Insert 31

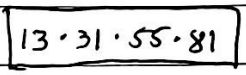
2. Insert 55



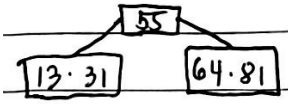
3. Insert 13



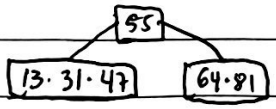
4. Insert 81



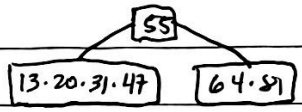
5. Insert 64



6. Insert 47

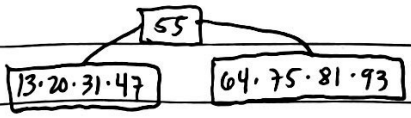


7. Insert 20

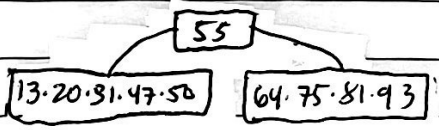


8. Insert 75

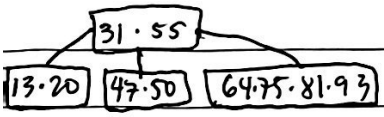
9. Insert 93



10. Insert 50

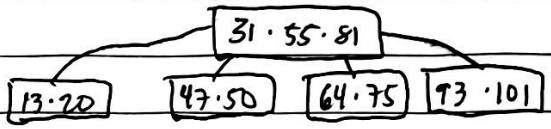


11. Insert 50



12. Insert 101

Final B-Tree :



CPE 12021 - OSA
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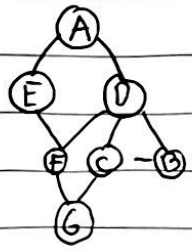
3.)

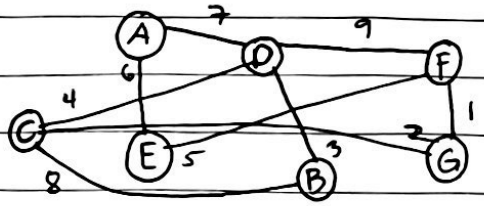
a.) Breadth - First Traversal = A E D F C B G



b.) Adjacency Matrix

	A	B	C	D	E	F	G
A	0	0	6	7	6	0	0
B	0	0	8	3	0	0	0
C	0	8	0	4	0	0	2
D	7	3	4	0	0	9	0
E	6	0	0	0	0	5	0
F	0	0	0	9	5	0	1
G	0	0	2	0	0	1	0

c.) MST



$A \xrightarrow{7} D \xrightarrow{3} B \xrightarrow{8} C \xrightarrow{2} G \xrightarrow{1} F \xrightarrow{5}$ = 26