# Algorithm Analysis and Data Structures
# CS 5343.001: Homework #5

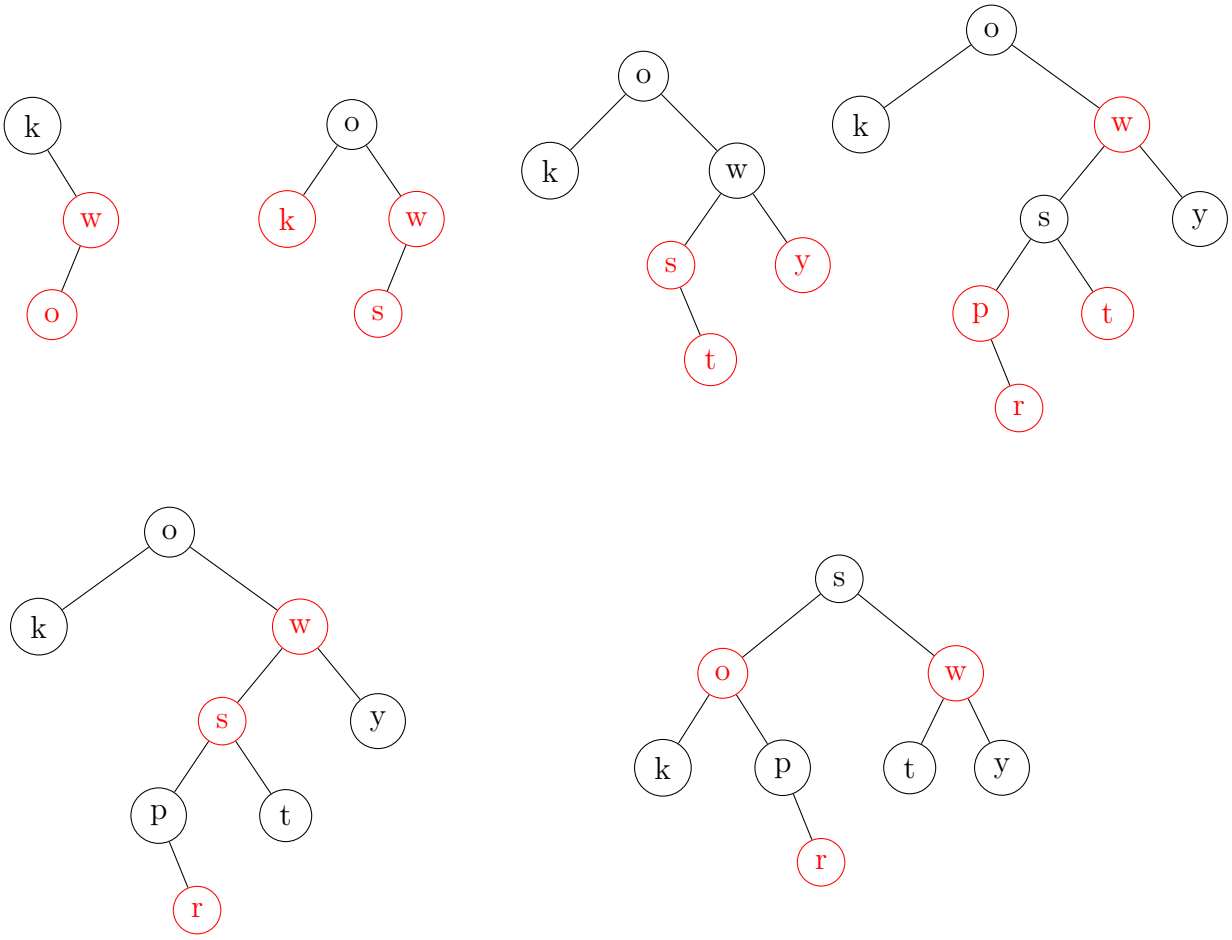
Due on Wednesday October 19, 2016 at 11:59pm

*Professor Greg Ozbirn*

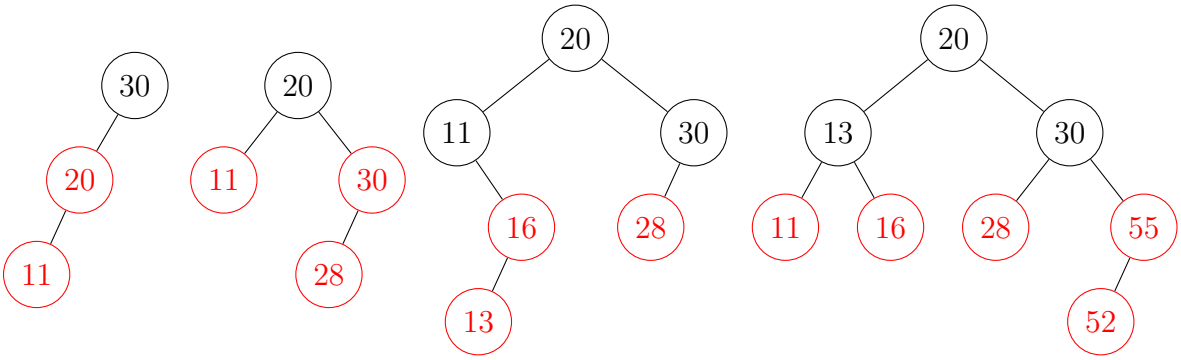
**Lizhong Zhang** **(lxz160730)**
lxz160730@utdallas.edu

# Contents

# Problem 1



# Problem 2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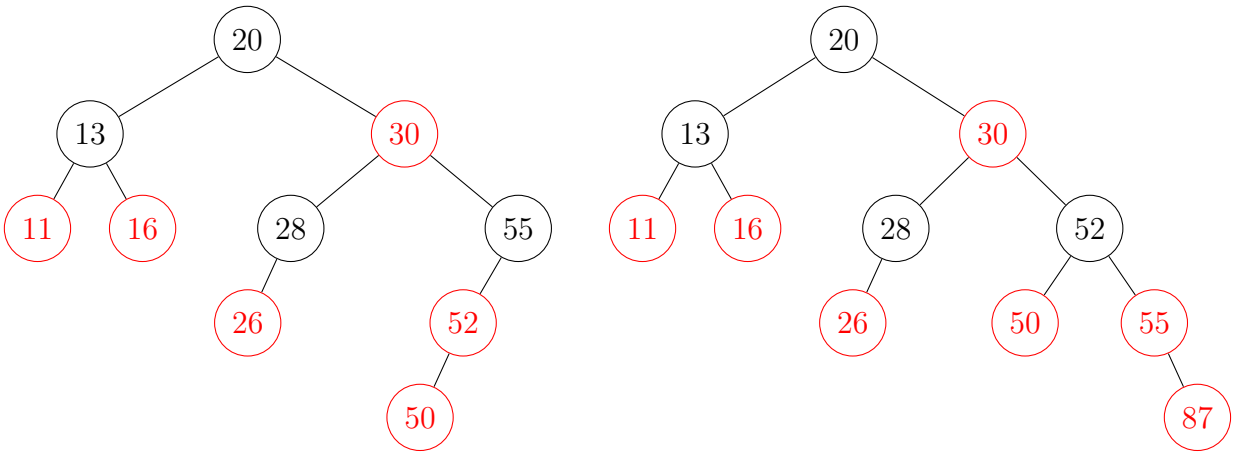
13
30
11
16
28
55
52


20
13
30
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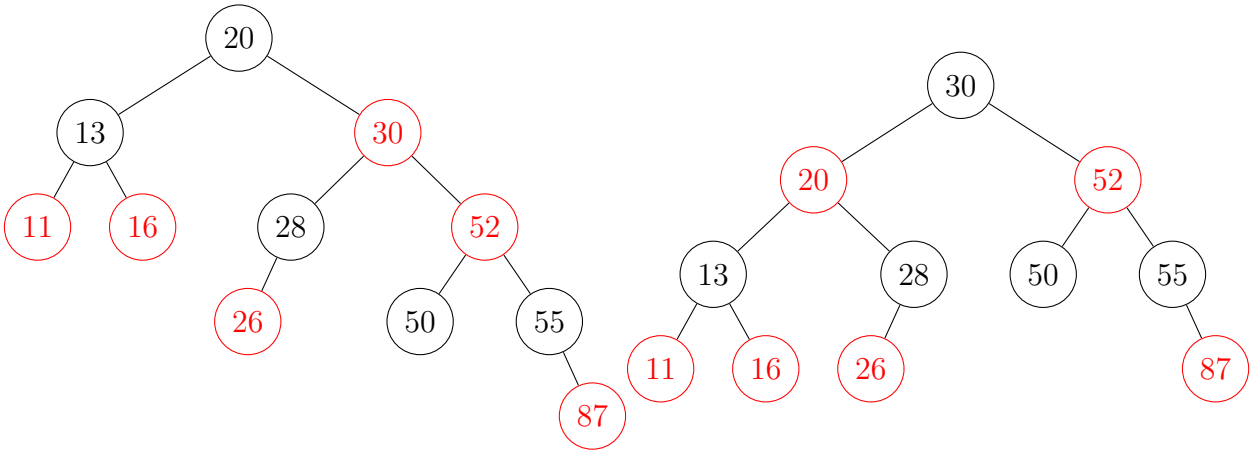
11
16
28
52
26
50
55
87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28
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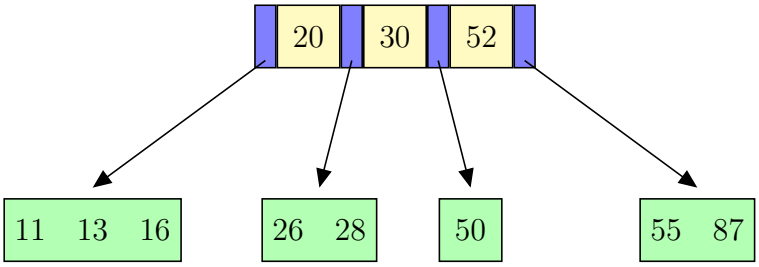
55
11
16
26
87

# Problem 3




# Problem 4

| x | h(x) |
|---|---|
| 3823 | 1 |
| 8806 | 5 |
| 8783 | 8 |
| 2850 | 3 |
| 3593 | 5 |
| 8479 | 3 |
| 1941 | 4 |
| 4290 | 0 |
| 8818 | 4 |
| 7413 | 3 |

| | | | |
|---|---|---|---|
| 0 | 4290 | | |
| 1 | 3823 | | |
| 2 | | | |
| 3 | 2850 | 8479 | 7413 |
| 4 | 1941 | 8818 | |
| 5 | 8806 | 3593 | |
| 6 | | | |
| 7 | | | |
| 8 | 8783 | | |
| 9 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |

# Problem 5

| | |
|---|---|
| 0 | 4290 |
| 1 | 3823 |
| 2 | |
| 3 | 2850 |
| 4 | 8479 |
| 5 | 8806 |
| 6 | 3593 |
| 7 | 1941 |
| 8 | 8783 |
| 9 | 8818 |
| 10 | 7413 |
| 11 | |
| 12 | |

# Problem 6

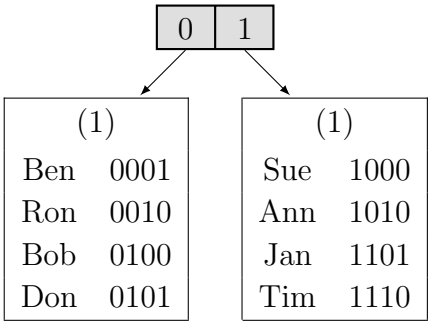
| | |
|---|---|
| 0 | 1941 |
| 1 | 3823 |
| 2 | |
| 3 | 2850 |
| 4 | 8479 |
| 5 | 8806 |
| 6 | 3593 |
| 7 | 8818 |
| 8 | 8783 |
| 9 | 4290 |
| 10 | |
| 11 | |
| 12 | 7413 |

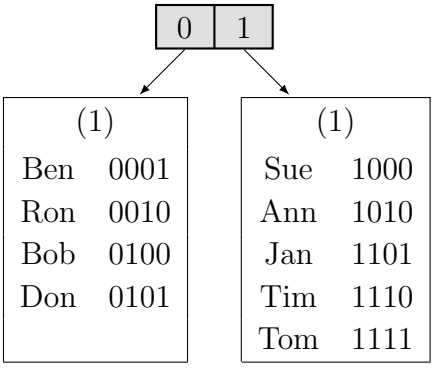
# Problem 7

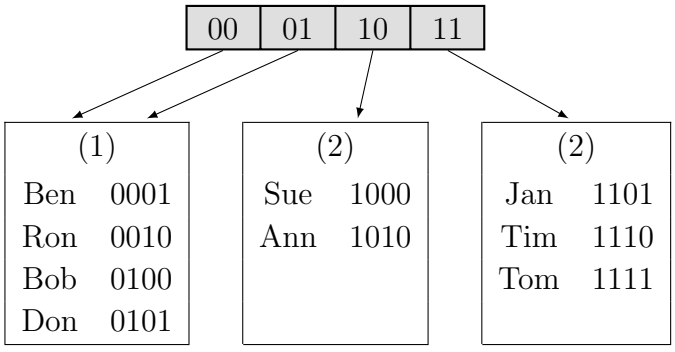
| $x$ | $h_1(x)$ | $h_2(x)$ |
|---|---|---|
| 3823 | 1 | 5 |
| 8806 | 5 | 5 |
| 8783 | 8 | 6 |
| 2850 | 3 | 10 |
| 3593 | 5 | 4 |
| 8479 | 3 | 2 |
| 1941 | 4 | 6 |
| 4290 | 0 | 11 |
| 8818 | 4 | 4 |
| 7413 | 3 | 1 |

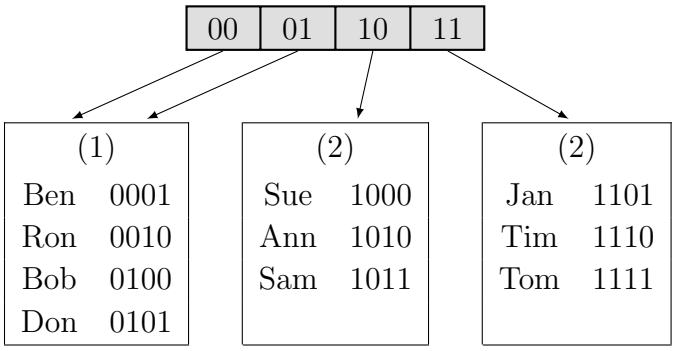
| | |
|---|---|
| 0 | 4290 |
| 1 | 3823 |
| 2 | |
| 3 | 2850 |
| 4 | 1941 |
| 5 | 8806 |
| 6 | 7413 |
| 7 | 8479 |
| 8 | 8783 |
| 9 | 3593 |
| 10 | |
| 11 | |
| 12 | 8818 |

# Problem 8


0
1
(1)
Ben 0001
Ron 0010
Bob 0100
Don 0101
(1)
Sue 1000
Ann 1010
Jan 1101
Tim 1110


0
1
(1)
Ben 0001
Ron 0010
Bob 0100
Don 0101
(1)
Sue 1000
Ann 1010
Jan 1101
Tim 1110
Tom 1111


00
01
10
11
(1)
Ben 0001
Ron 0010
Bob 0100
Don 0101
(2)
Sue 1000
Ann 1010
(2)
Jan 1101
Tim 1110
Tom 1111


00
01
10
11
(1)
Ben 0001
Ron 0010
Bob 0100
Don 0101
(2)
Sue 1000
Ann 1010
Sam 1011
(2)
Jan 1101
Tim 1110
Tom 1111

# Problem 9

Step 1

| Table1 | |
|---|---|
| 0 | B |
| 1 | |
| 2 | A |
| 3 | |
| 4 | C |

| Table2 | |
|---|---|
| 0 | |
| 1 | |
| 2 | |
| 3 | |
| 4 | |

Step 2

| Table1 | |
|---|---|
| 0 | D |
| 1 | |
| 2 | A |
| 3 | |
| 4 | C |

| Table2 | |
|---|---|
| 0 | B |
| 1 | |
| 2 | |
| 3 | |
| 4 | |

Step 3

| Table1 | |
|---|---|
| 0 | B |
| 1 | |
| 2 | E |
| 3 | |
| 4 | C |

| Table2 | |
|---|---|
| 0 | A |
| 1 | D |
| 2 | |
| 3 | |
| 4 | |

# Problem 10

| | item | Hop |
|---|---|---|
| ... | | |
| 6 | A | 1000 |
| 7 | B | 1000 |
| 8 | | 0000 |
| 9 | C | 1000 |
| ... | | |

| | item | Hop |
|---|---|---|
| ... | | |
| 6 | A | 1000 |
| 7 | B | 1100 |
| 8 | D | 0000 |
| 9 | C | 1000 |
| ... | | |

| | item | Hop |
|---|---|---|
| ... | | |
| 6 | A | 1001 |
| 7 | B | 1100 |
| 8 | D | 0000 |
| 9 | E | 0100 |
| 10 | C | 0000 |
| ... | | |

| | item | Hop |
|---|---|---|
| ... | | |
| 6 | A | 1001 |
| 7 | B | 1101 |
| 8 | D | 0000 |
| 9 | E | 0010 |
| 10 | F | 0000 |
| 11 | C | 0000 |
| ... | | |

| | item | Hop |
|---|---|---|
| ... | | |
| 6 | A | 1001 |
| 7 | B | 1101 |
| 8 | D | 0001 |
| 9 | E | 0001 |
| 10 | F | 0000 |
| 11 | G | 0000 |
| 12 | C | 0000 |
| ... | | |