CS 526 O2
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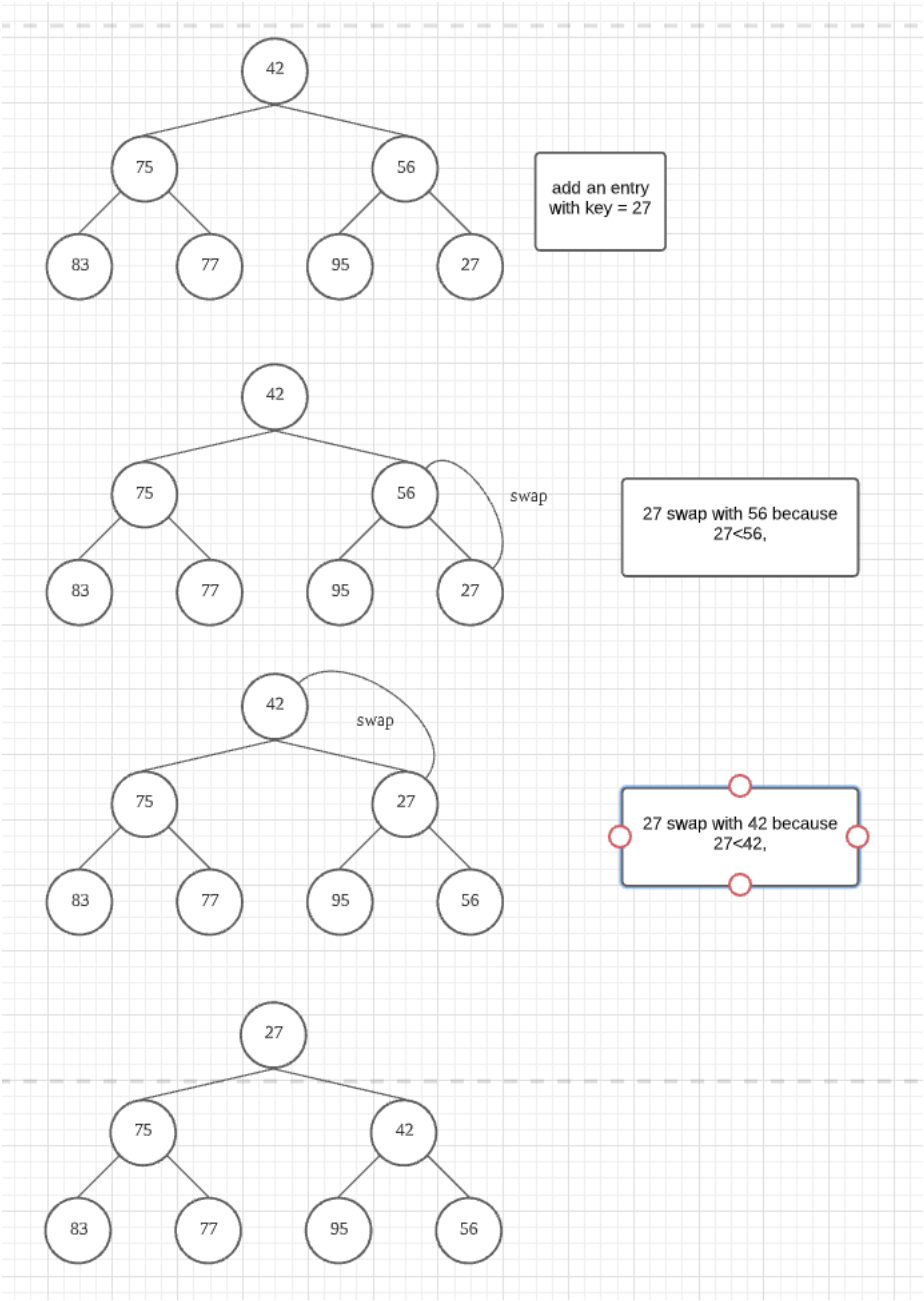
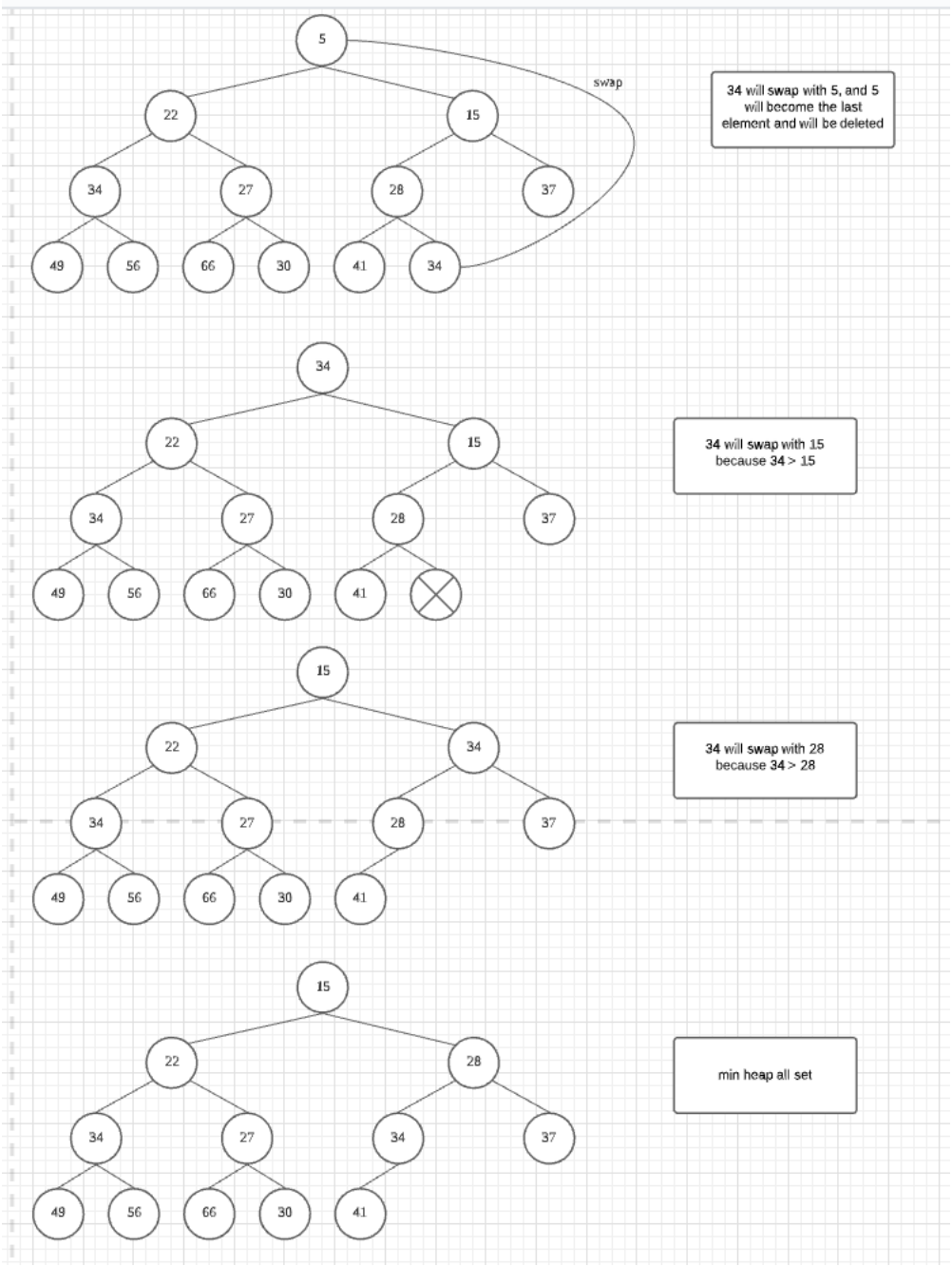
Assignment 4

Problem 1:



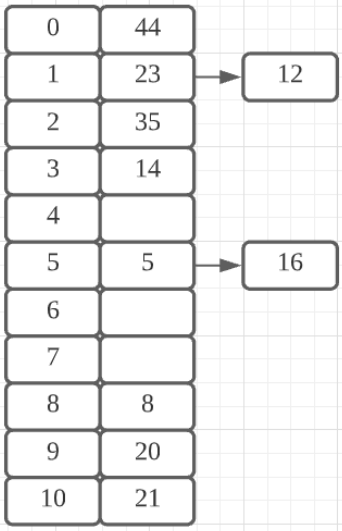
Problem 2


5
swap
22
15
34
27
28
37
49
56
66
30
41
34
34 will swap with 5, and 5 will become the last element and will be deleted
34
22
15
34
27
28
37
49
56
66
30
41
34 will swap with 15 because 34 > 15
15
22
34
34
27
28
37
49
56
66
30
41
34 will swap with 28 because 34 > 28
15
22
28
34
27
34
37
49
56
66
30
41
min heap all set

Problem 3

ArraySequence of keys to be inserted: <5, 8, 44, 23, 12, 20, 35, 32, 14, 16>

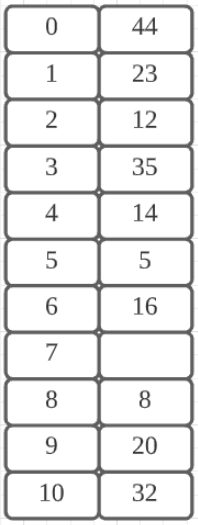
h(5)= 5 mod 11 = 5
h(8)= 8 mod 11 = 8
h(44)= 44 mod 11 = 0
h(23)= 23 mod 11 = 1
h(12)= 12 mod 11 = 1
h(20)= 20 mod 11 = 9
h(35)= 35 mod 11 = 2
h(32)= 32 mod 11 = 10
h(14)= 14 mod 11 = 3
h(16)= 16 mod 11 = 5



Problem 4

ArraySequence of keys to be inserted: <5, 8, 44, 23, 12, 20, 35, 32, 14, 16>

h(5)= 5 mod 11 = 5
h(8)= 8 mod 11 = 8
h(44)= 44 mod 11 = 0
h(23)= 23 mod 11 = 1
h(12)= 12 mod 11 = 1
position 1 exist key,try to access index(2)
h(20)= 20 mod 11 = 9
h(35)= 35 mod 11 = 2
position 2 exist key, try to access index(3)
h(32)= 32 mod 11 = 10
h(14)= 14 mod 11 = 3
position 3 exist key, try to access index(4)
h(16)= 16 mod 11 = 5
position 5 exist key, try to access index(5)



Problem 5

0	
1	
2	2
3	29
4	
5	18
6	16
7	
8	21
9	48
10	15
11	
12	

N = 13, h(k) = k mod 13, h'(k) = 1 + (k mod 11)

h(16)= 16 mod 13 = 3
h'(16)= 1+(16 mod 11) = 1+5 =6
h(k,i) = (h(k)+i * h'(k)) mod N

i = 1 : 9 mod 13 = 9 (collision)
i = 2 : 15 mod 13 = 2 (collision)
i = 3 : 21 mod 13 = 8 (collision)
i = 4 : 29 mod 13 = 6 (empty)

Problem 6

In this assignment, I know how to get the code execute time, and I just recognize I can run java project without type “javac ~~~.java”in terminal first. I also learn how to set random int and set range of the seed. Another point that made me understand is that the methods of hashmap and list are different.

But what makes me confuse is that my search time results for the last two lines of the list are not available. I checked my code but I did not find an error. If you saw the error, please told me, I am really confuse. My email address is hwu36@bu.edu.