CS1555 Assignment 7

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12/6/17

Qutestion1:

(a)

1) Insert 2, 3, 5, 7, 11, 17, 9, 13, 4. 13 mod 4 = 1, put into overflow bucket.

BSplit

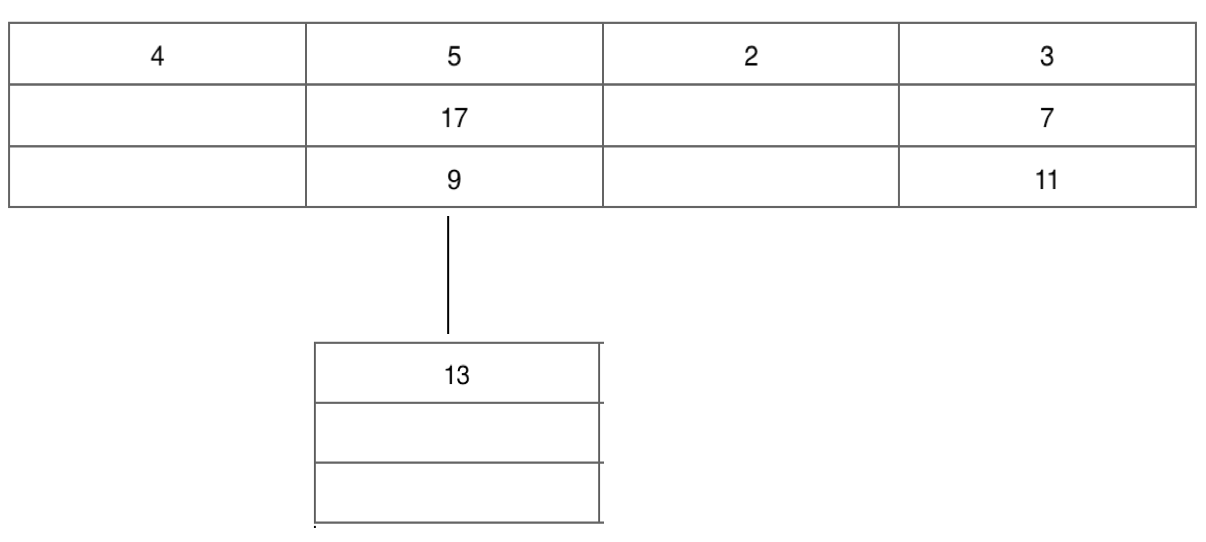
BLast

1

0

2

3



2) Insert 19, 19 mod 4 = conflict with bucket[3]. Split bucket[0], add bucket[4] 4 mod 8 = 4, put 4 into bucket[4], increment BSplit. 19 still in conflict with bucket 3.

BSplit

BLast

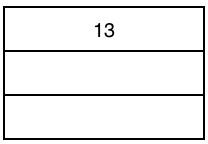
0

2

3

4

1



3) Split bucket[1], add bucket[5], {5,13} mod 8 = 5, put 5 and 13 into bucket[5]. Overflow bucket for bucket[1] is freed. New overflow bucket is added due to 2 consecutive splits for 19 in conflict to bucket[3]. Put 19 into overflow bucket for bucket[3].

BSplit

Blast

0

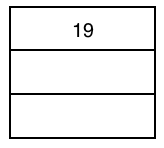
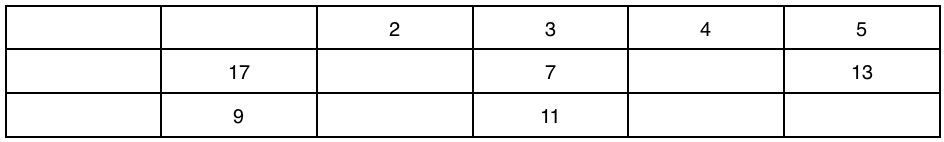
1

2

3

4

5



4) Insert 20, 29, 31, 25, 23. 20 mod 4 = 0, bucket[0] has split, 20 mod 8 = 4, and so on.

Blast

BSplit

4

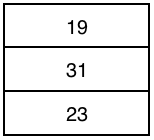
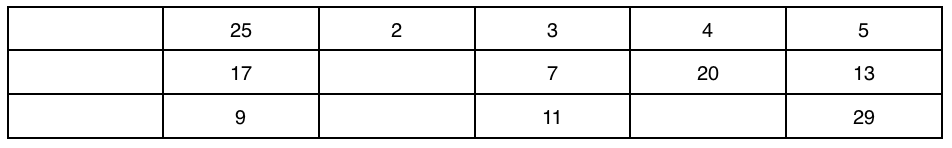
5

3

1

0

2



(b)

5) Delete 7, 23, 31

Blast

BSplit

1

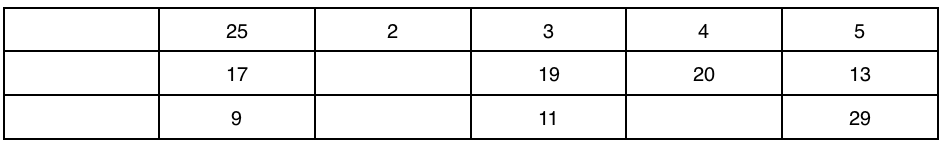
3

2

4

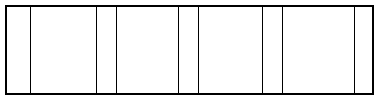
0

5

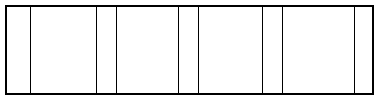
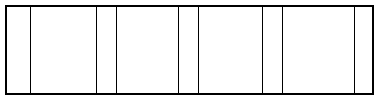


Question 3, B+ Tree

(1) Insert 2, 3, 5, 7, 8, 17



5



2

3

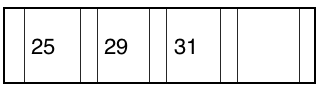
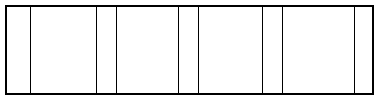
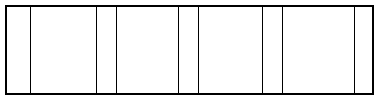
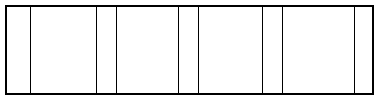
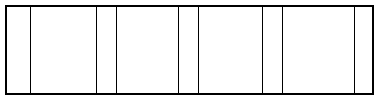
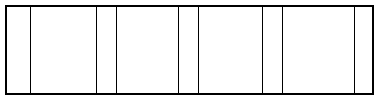
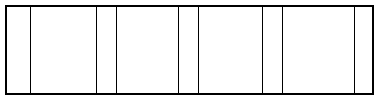
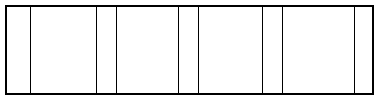
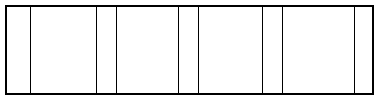
5

7

8

17

(2) Insert 15, 19, 11, 20, 29, 31, 25



15

8

5

5

7

8

11

17

15

19

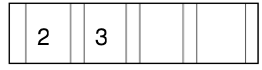
25

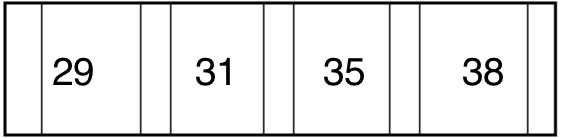
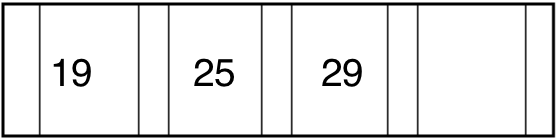
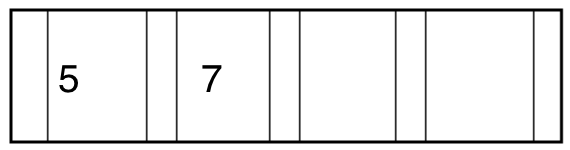
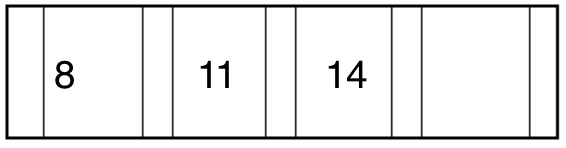
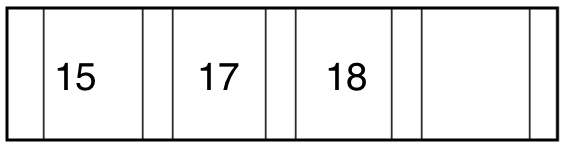
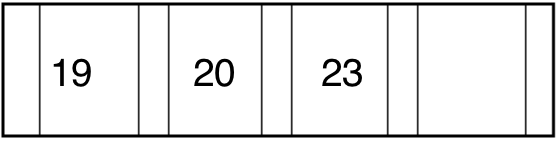
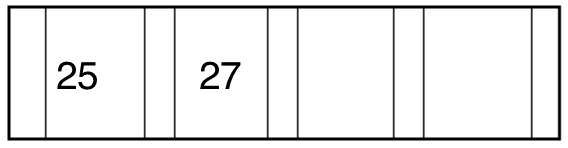
19

20

2

3

(3) Insert , 23, 18, 14, 38, 27, 35



Question 5

1. H1, H4 are conflict equivalent
2. H2, H3, H4 are conflict serializable



