

CS1555 Assignment 7
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Question 1:

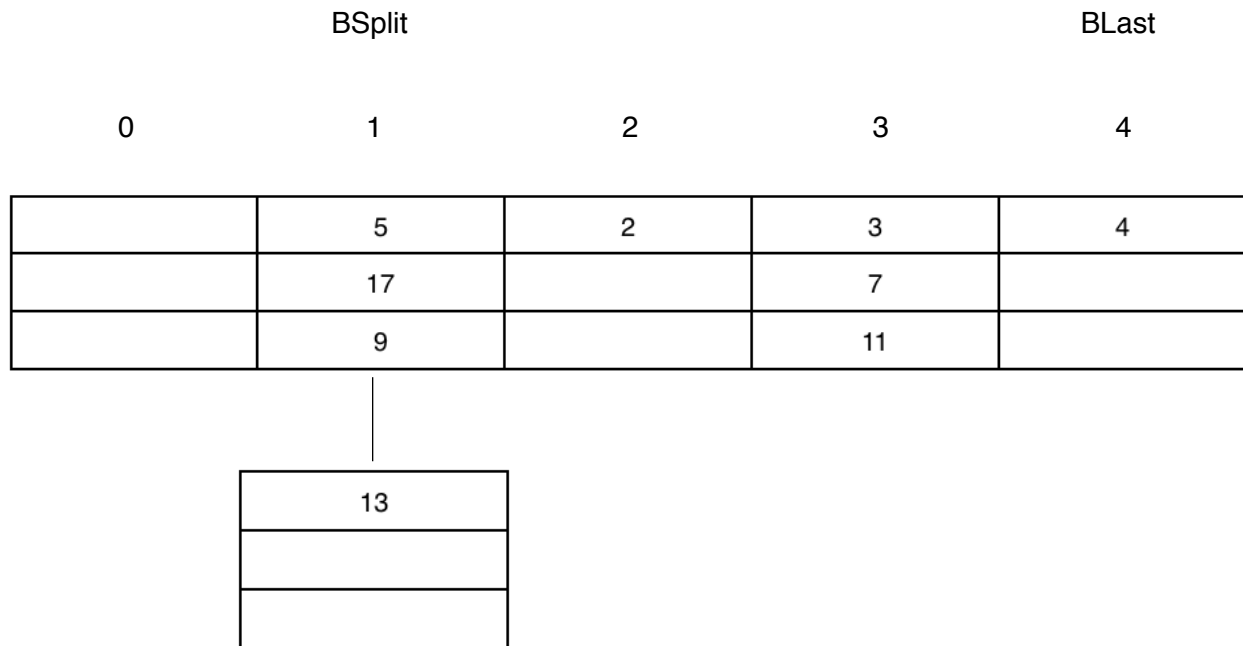
(a)

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

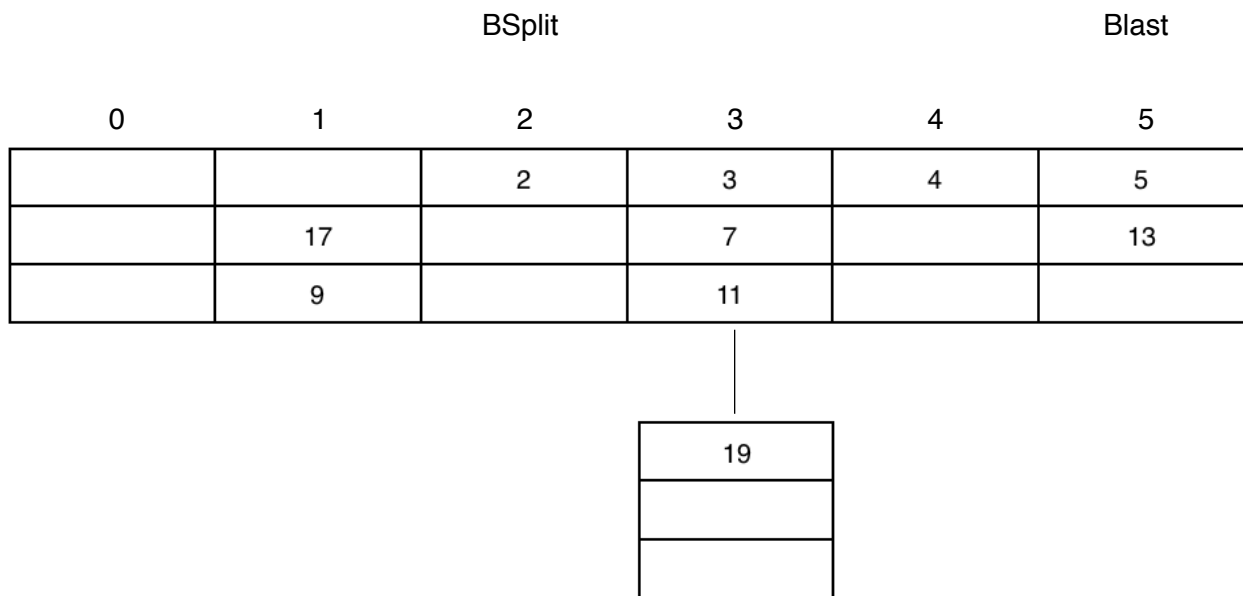
BSplit			BLast	
0	1	2	3	
4	5	2	3	
	17		7	
	9		11	

13

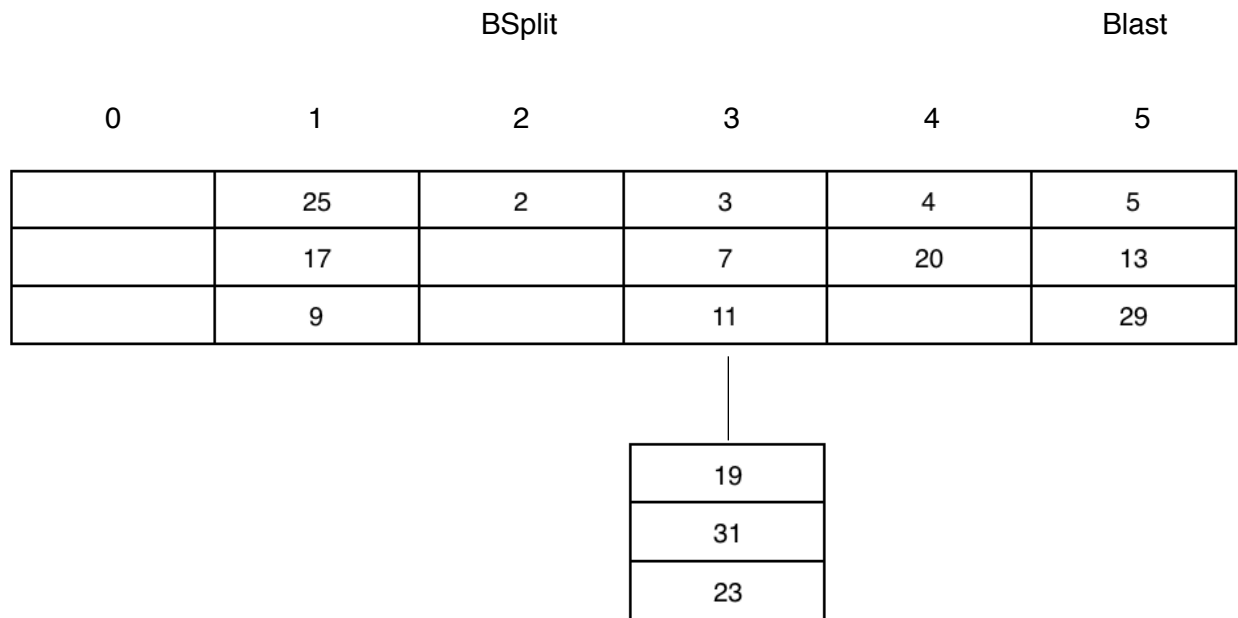
2) Insert 19, $19 \bmod 4 = \text{conflict with bucket}[3]$. Split bucket[0], add bucket[4] $4 \bmod 8 = 4$, put 4 into bucket[4], increment BSplit. 19 still in conflict with bucket 3.



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].



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

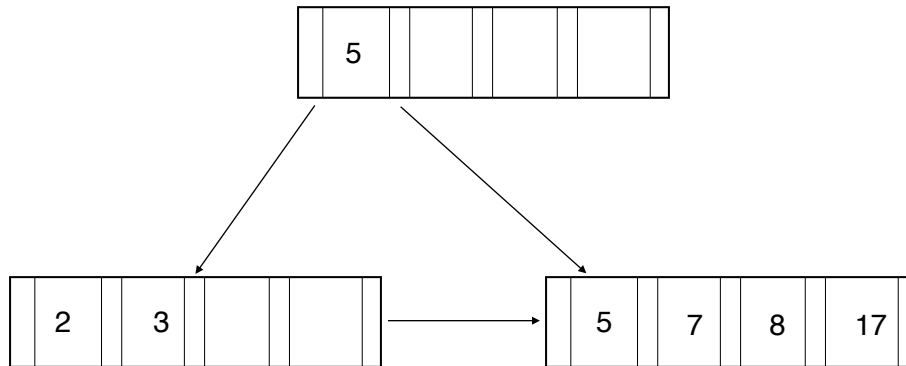


(b)
5) Delete 7, 23, 31

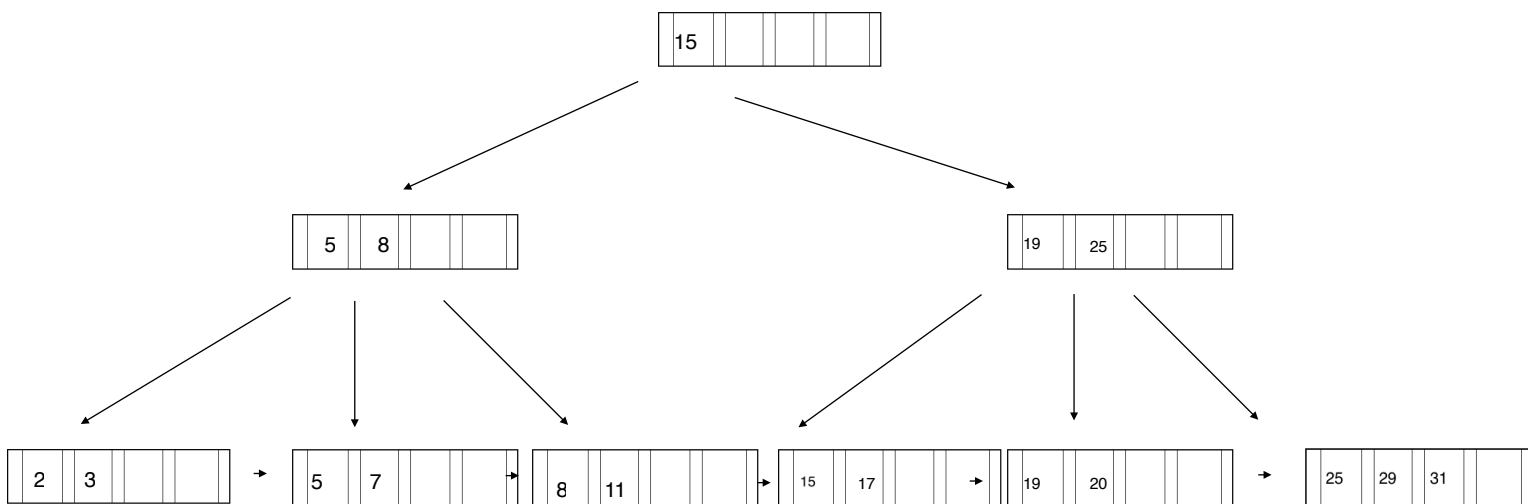
BSplit			Blast		
0	1	2	3	4	5
	25	2	3	4	5
	17		19	20	13
	9		11		29

Question 3, B+ Tree

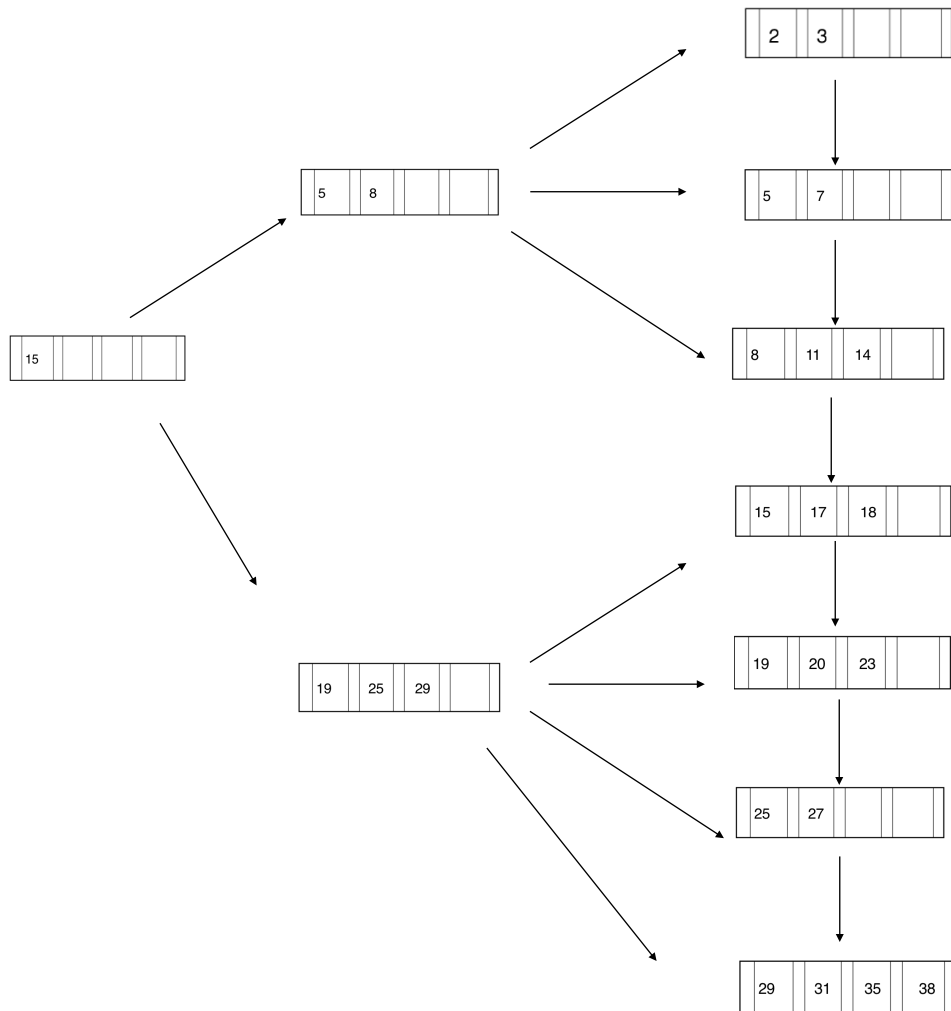
(1) Insert 2, 3, 5, 7, 8, 17



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



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



Question 5

- (a) H1, H4 are conflict equivalent
- (b) H2, H3, H4 are conflict serializable