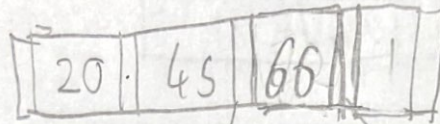
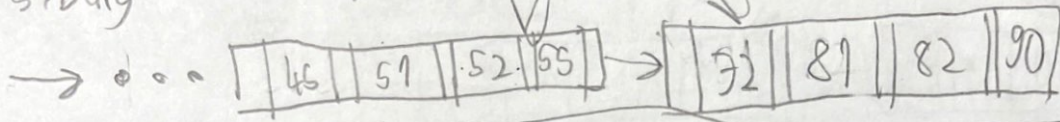


g) Delete 66,  
merge with  
sibling



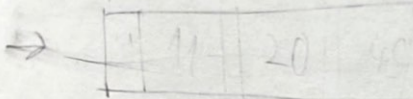
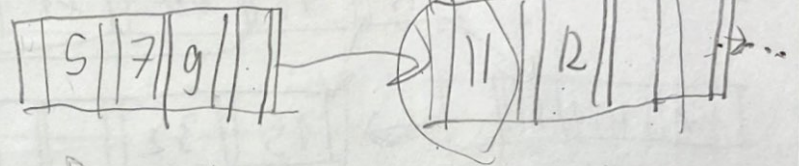
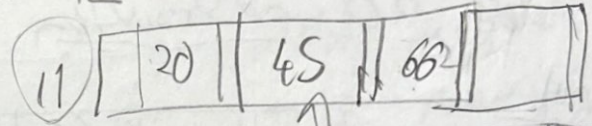
delete key  
to deleted node (81)



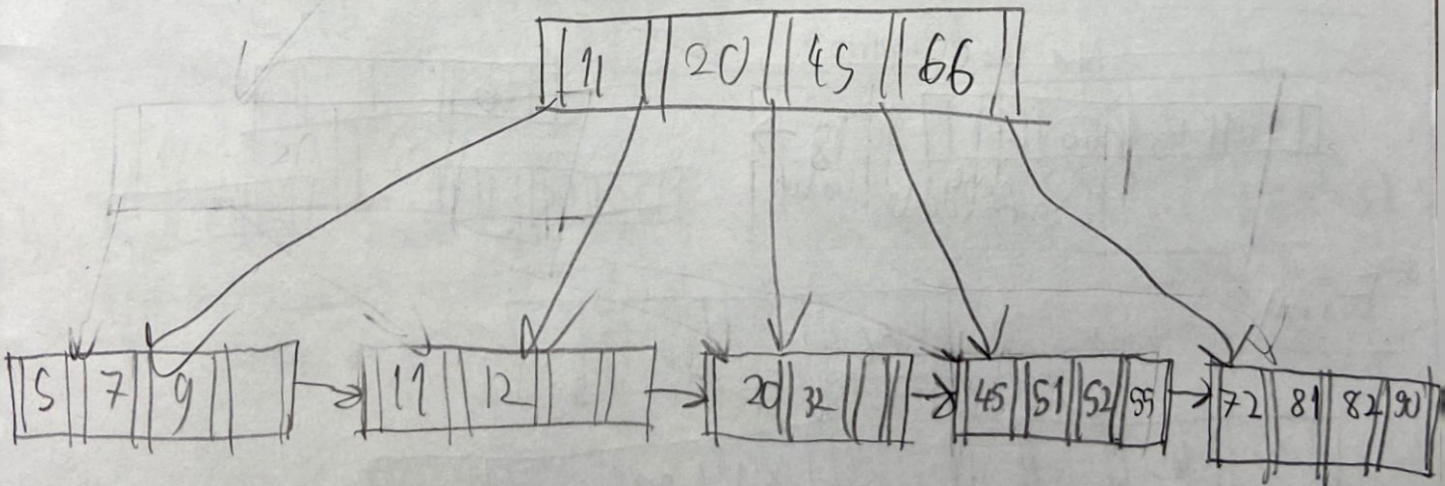
• Insert 509



• Insert 12

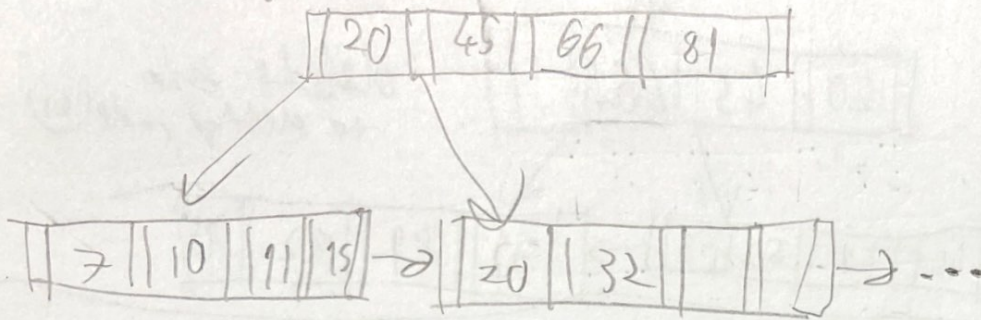


Final  
Result



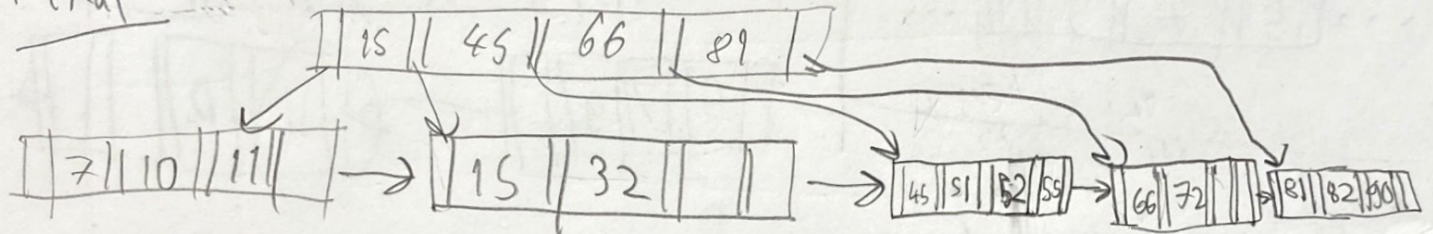


b) insert 10, 15

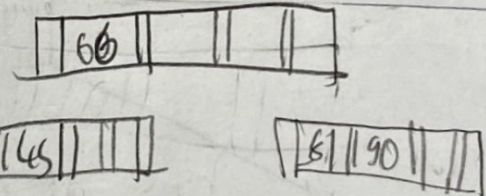
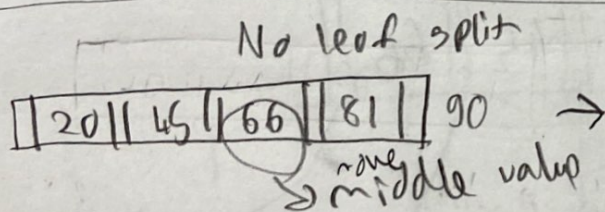
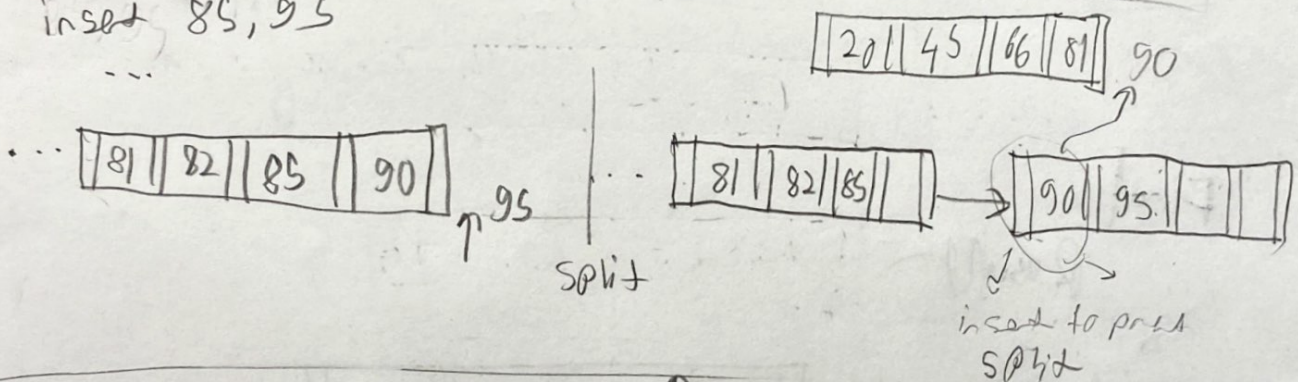


delete 20, redistribution.

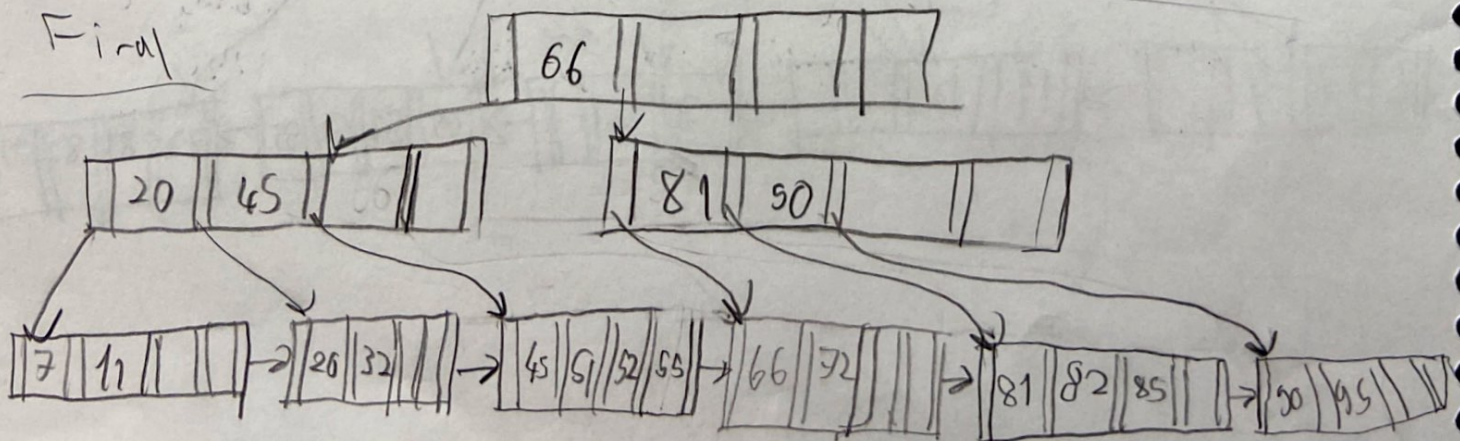
Final



c) insert 85, 95

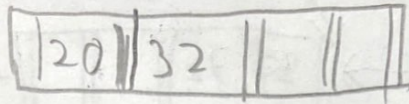
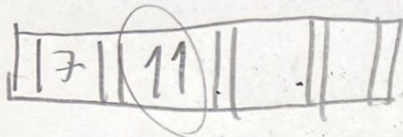
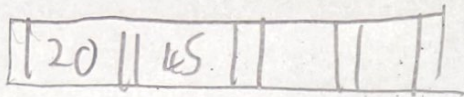


Final



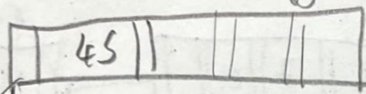
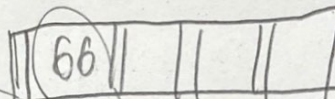


d) delete 11 from part C

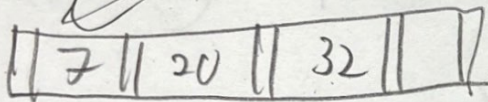
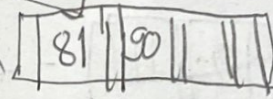


Too few with 15

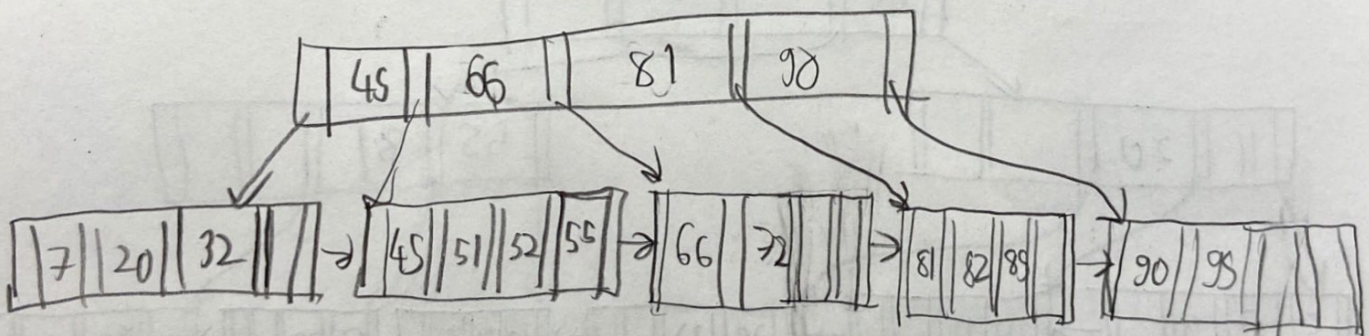
merge, ord. delete 45



+00  
few  
next with the siblings



Final



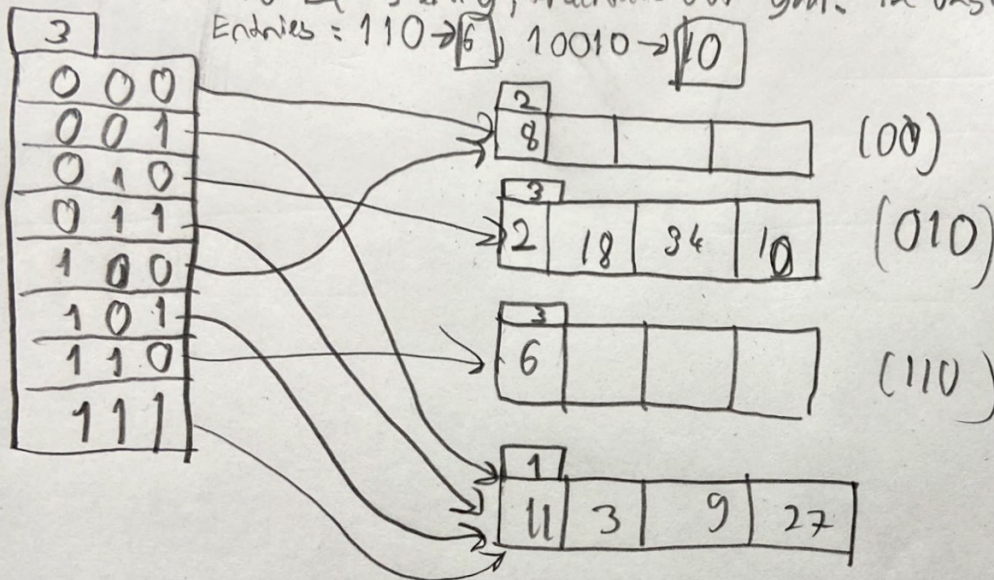


Q2) 2 → 0010  
3 → 0011  
8 → 1000  
9 → 1001

11 → 1011  
19 → 010010  
27 → 011011  
34 → 100010

To achieve the doubling of the bucket address table we need to make at least one bucket to check for 3 digits.

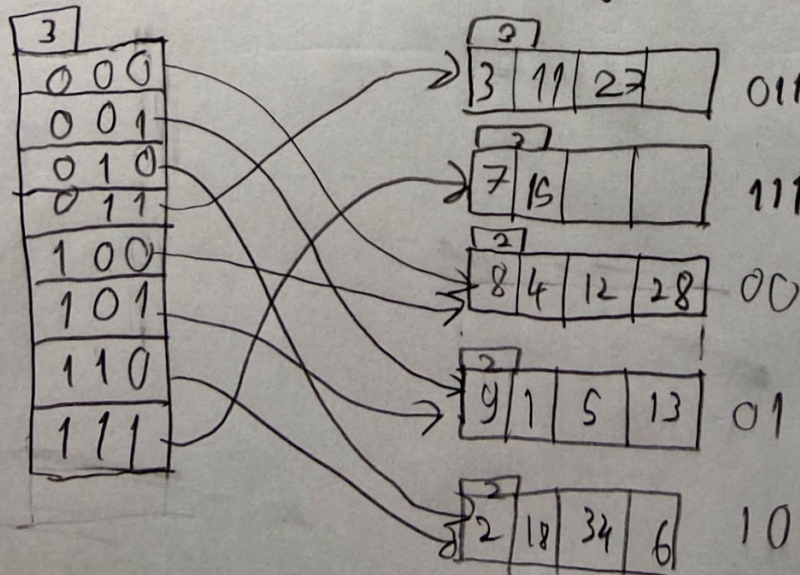
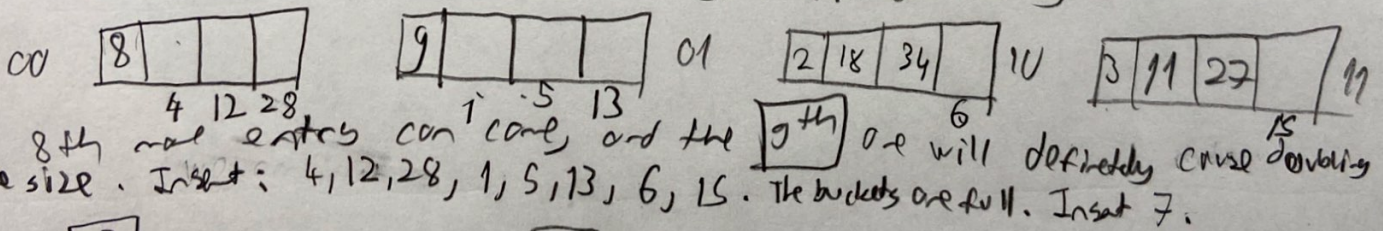
Since the 2nd least significant digit of each entry is 0, we will need an entry with its 3rd significant bit is 1, and we have two entries with 10 ending. Hence we will force it to be 6 entry, achieving our goal. The answer is **2**.



6 and 10 inserted

answer 2

b) we need to fill all buckets before moving to 3 digit, we will check for 2 digit first and try to fill all buckets



answer 9