Skip List

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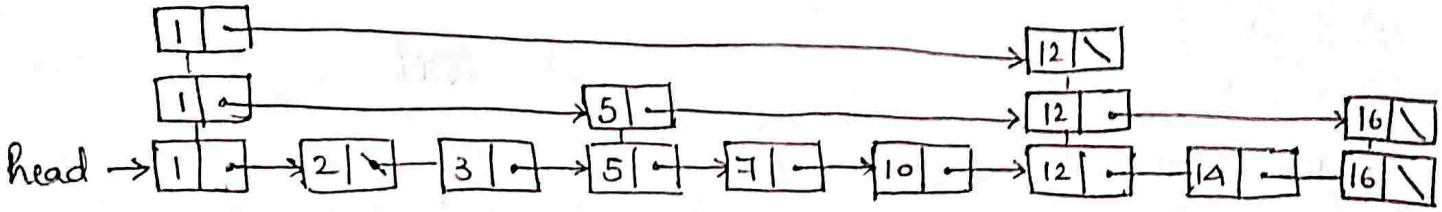
Let us consider a level-3 skip list:

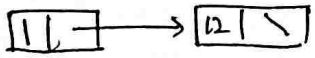


① inserting value ⑧

→ Start from top level
→ Search for the value or the node with value less than the inserting value.
→ Once the node with the node→next value is greater than inserting value is found move one level down and repeat the same till right spot is found.
→ insert the node in traversed spot.

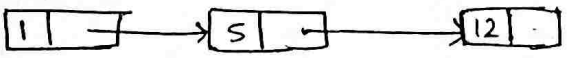
value = 8

*) At level-2



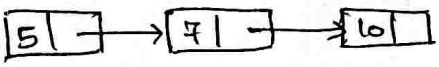
⇒ Since 8 is less than 12 ⇒ level = 1

*) at level - 1

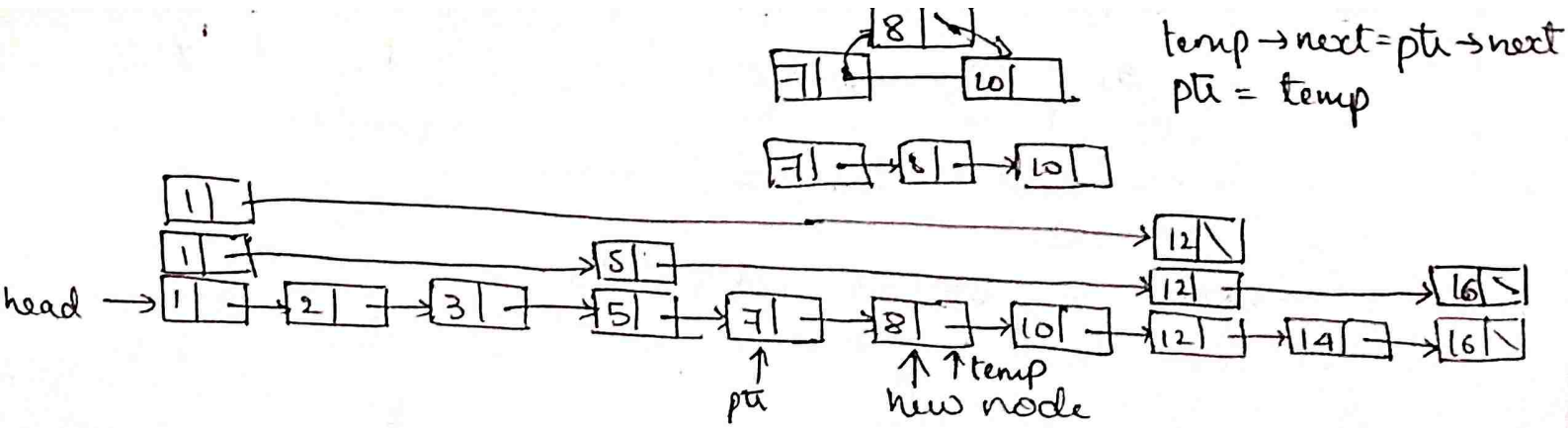


⇒ Since 8 is less than 12 ⇒ level = 0

*) at level - 0



⇒ Since we are at lowest level and 8 is less than 10 insert node 8 after node 7.



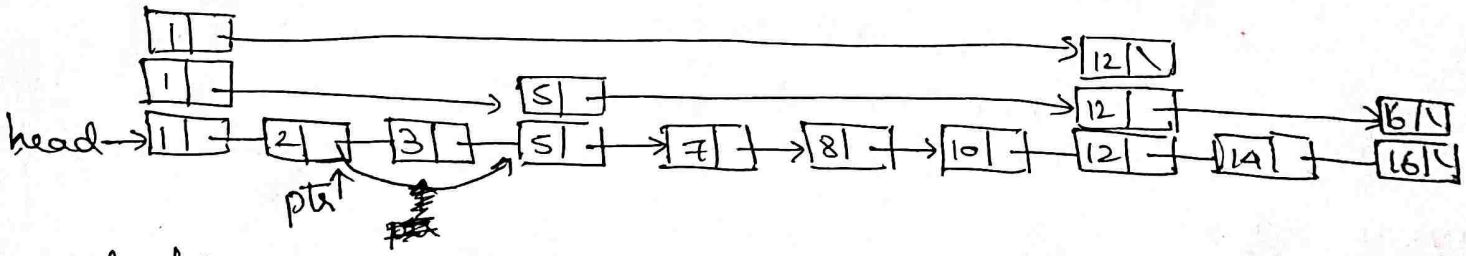
② Delete Value ③

*) Start from highest level

*) Search for the node whose node→next value is less than the deleting value. i.e ③

*) Move one level down to the current node when the above operation is done and continue the same.

*) Once the exact node is found. change the pointer field of the node from highest level to ground level and then delete the node.



at level-0

ptr → next = ptr → next → next

free (ptr)