

1.1 Traverse the bottom level (level 0) of the skip list from negative infinity to positive infinity. The order of the keys as we traverse the linked list will be in sorted order.

1.2 $O(n \log n)$ time

insert all n keys into the skip list will take $\Theta(n) * O(\log n) = O(n \log n)$ time;

traversing bottom level of skip list takes $\Theta(n)$ time;

in total, this algorithm requires $\Theta(n) + O(n \log n) = O(n \log n)$ time.

2.1 assuming the size of the hash table is m

We will need to iterate through each index of the hash table, at each index, iterate through all the elements at that index. The keys should be sorted in the order of iteration

2.2 assuming the size of the hash table is m

Iterate through every index of the hash table takes $\Theta(m)$ time;

the total number of elements in the hash table will be n , so the time needed to iterate through the elements at all indexes add up to $\Theta(n)$;

in total, the algorithm requires $\Theta(m+n)$ time.