Remove Zero Sum Consecutive Nodes from Linked List

i/p -> 1 -> 2 -> -3 -> 3 -> 1

o/p -> 3 -> 1

Lets think i/p as Array

ex:

	0	1	2	3	4	5	6
	-9	2	3	-2	-3	9	1
prefix ->	-9	-7	-4	-6	-9	0	1

zero (Delete)

Dubara aya

Sum zero {
0 -> -9
1 -> -7
2 -> -4
3 -> -6
4 -> -9
}

Same

Save prefix Sum in Map

key -> value
-9 -> True
~~-7 -> True~~
~~-4 -> True~~
~~-6 -> True~~

-> Remove them also

Array

-9	9	1

Sum -9 | 0

Map
~~-9 -> True~~

Also 0 aate hi sari nodes hta do

Map
1 -> True

-> 1 -> final Ans

In Linked List

-9 -> 2 -> 3 -> -2 -> -3 -> 9 -> 1 -> X

CurrSum -> ~~-9~~ ~~-7~~ ~~-4~~ ~~-6~~ ~~-9~~ 0

↑
it

Map
int, ListNode*

old node -> -9	-9
~~-7~~	~~2~~
~~-4~~	~~3~~
~~-6~~	~~-2~~

delete these

(i) -> if Csum is in Map :
Sanitize Map (oldnode->next , Csum)
Old node -> next = it -> next

2 -> 3 -> -2 -> -3 -> 9 -> 1 -> X

Csum = -9 + 2 = -7 -4 -6 -9 -> Csum = -9 hogya

delete -7   delete -4   delete -6

Break loop

=> -9 -> 9 -> 1

↑
it

Csum 0

(ii) -> if (csum == 0)
head = it -> next;
mp.clear()
↓
To clear all entries in the map

Summarize -> Algo

```
Csum = 0
while (it){
    Csum += it -> val;
    if (csum == 0){
        head = it -> next
        mp.clear()
    }
```

```
else if (mp.find (csum) != mp.end()){
        sanitize Map (mp[csum]->next, map, csum)
        mp [csum] -> next  = it -> next;
    }
    else {
            mp [csum] = it
    }
        it = it -> next
```

Sanitize Map->

```
        (curr, mp, csum) {
    int temp = csum;
     while  (true) {
          temp += head -> val;
           if (temp == csum) {
                break;
           }
           mp. erase (temp);
           curr = curr->next;
        }
  }
```

(S-1) -> Add Node value to csum

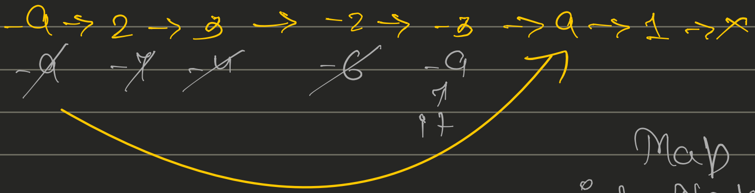
(S-2) -> if csum == 0 -> erase all entries in map
& head = it -> next

(S-3) -> if mp[csum) in map -> santize map
mp[csum]-> next = it -> next

(S-4) -> else mp[csum] = it
it = it -> next

Return head.

Dry Run :



Csum = 0

mp[csum] → next = it → next

Map

int ,	Node*
-9 ,	-9
~~-7 ,~~	~~2~~
~~-4 ,~~	~~3~~
~~-6 ,~~	~~2~~

sanitize map

-9 → 9 { → 1

0

head

Csum = -9

map

int ,	Node*
~~-9 ,~~	~~9~~

if (csum == 0)

clear map

head = it → next

→ 1 → X

~~it~~ it

csum = 1

↳ stop loop

return head