

Is linkedlist a palindrome

time: $O(n^2)$

time: $O(n)$

space - Not allowed
($O(1)$)

mid \rightarrow 4

head2 = mid.next \rightarrow 3

mid.next = null

head2 = reverse(head2)

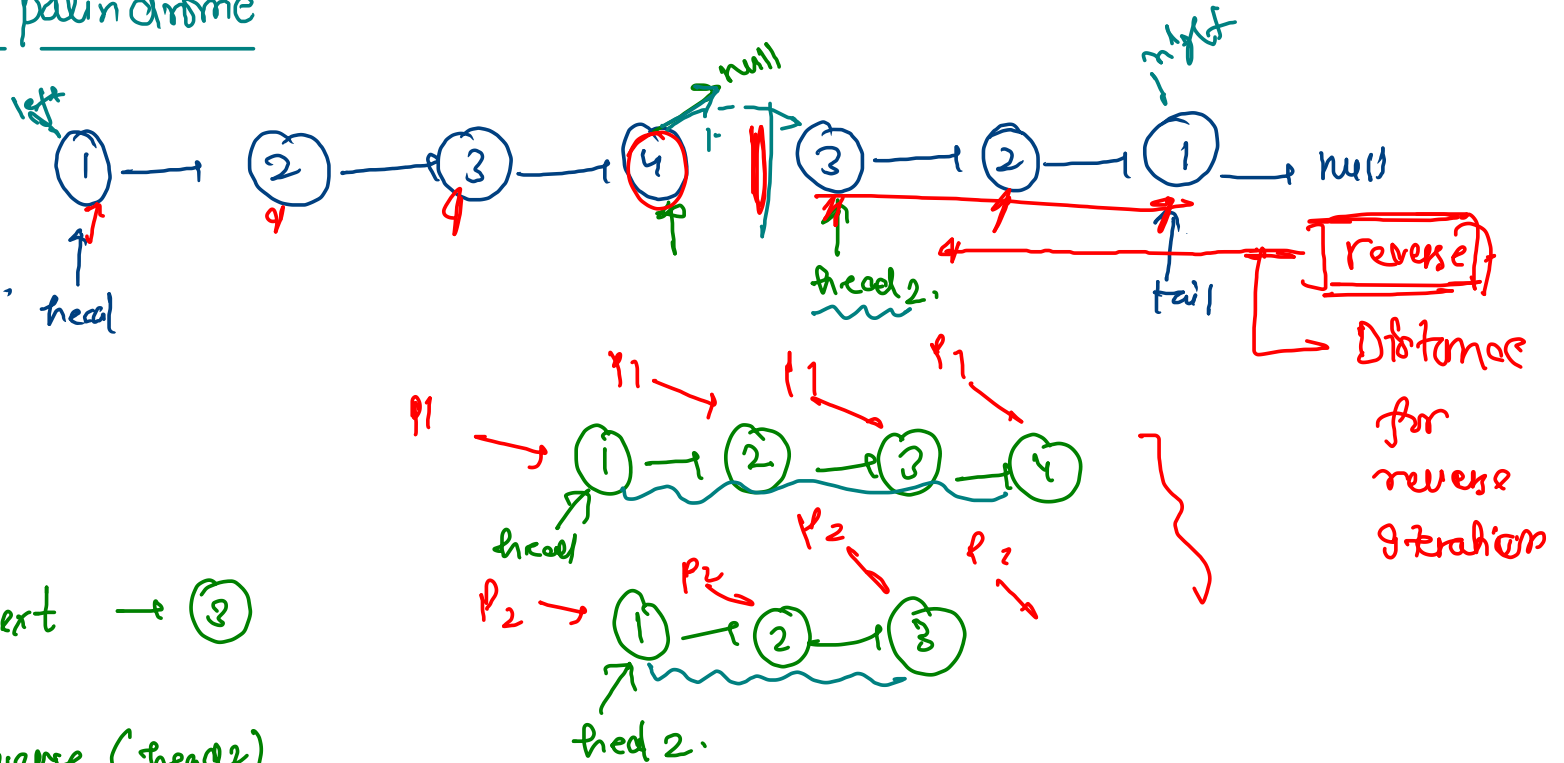
maintain original list

head2 = reverse(head2);

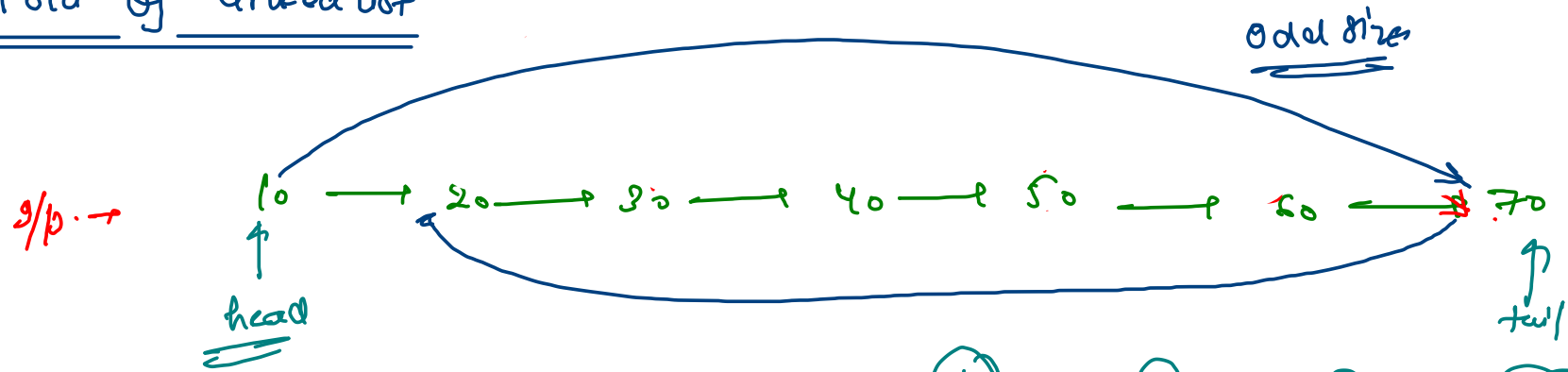
mid.next = head2;

palindrome - True.

boolean flag



Fold of Linked list

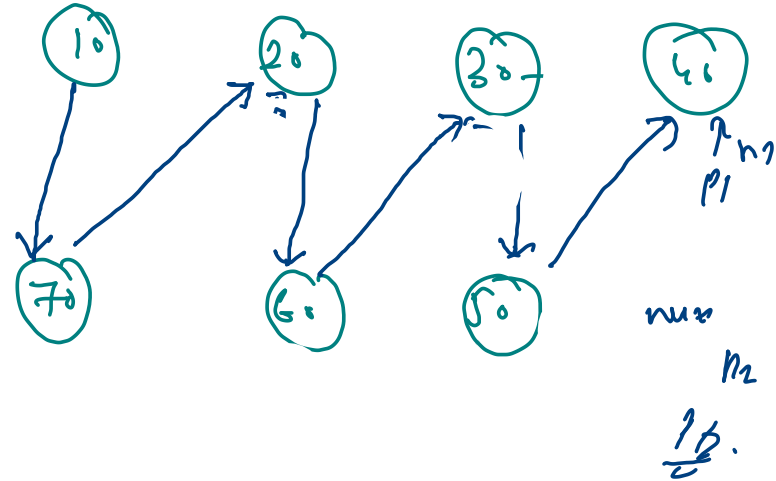


① get mid. (40)

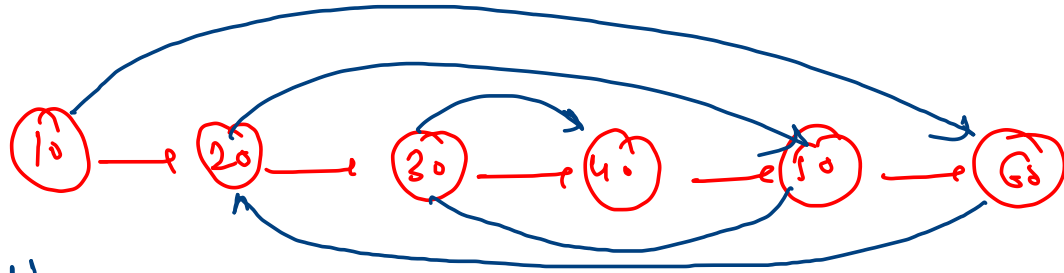
② head 2. = mid.next = 50

③ head2 = reverse(head2)

④ place connection
 $n1 = p1.next;$
 $n2 = p2.next;$
 $p1.next = p2;$
 $p2.next = n1;$
 $p1 = n1;$
 $p2 = n2;$

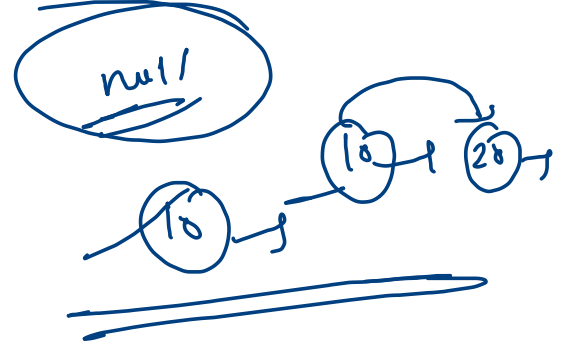
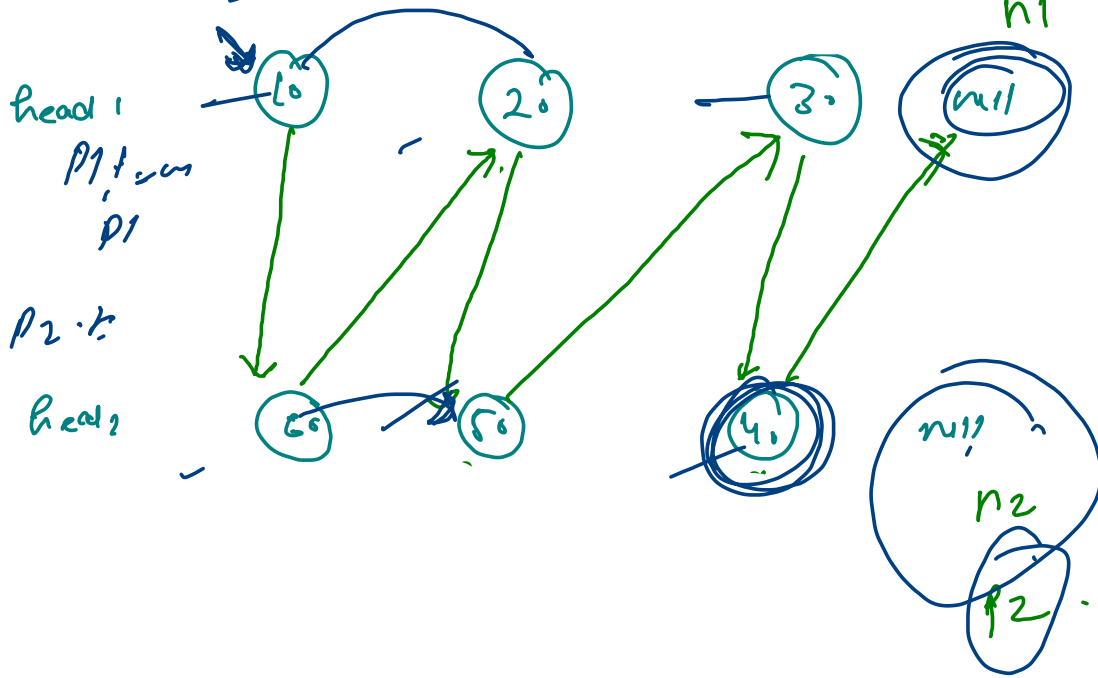


Even size-



tail = p2

tail



```
while(p1 != null & p2 != null){
```

```
    n1 = p1.next;
```

```
    n2 = p2.next;
```

```
    p1.next = p2;
```

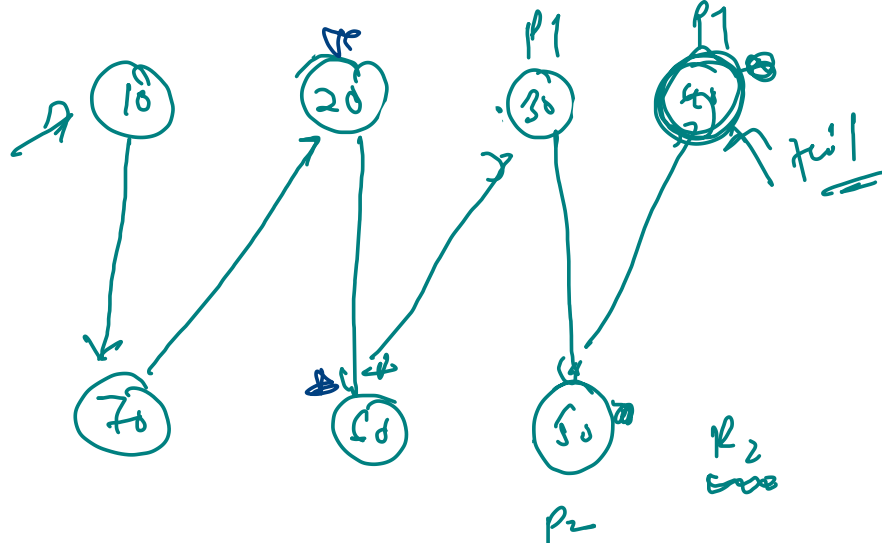
```
    p2.next = n1;
```

```
    p1 = n1;
```

```
    p2 = p2;
```

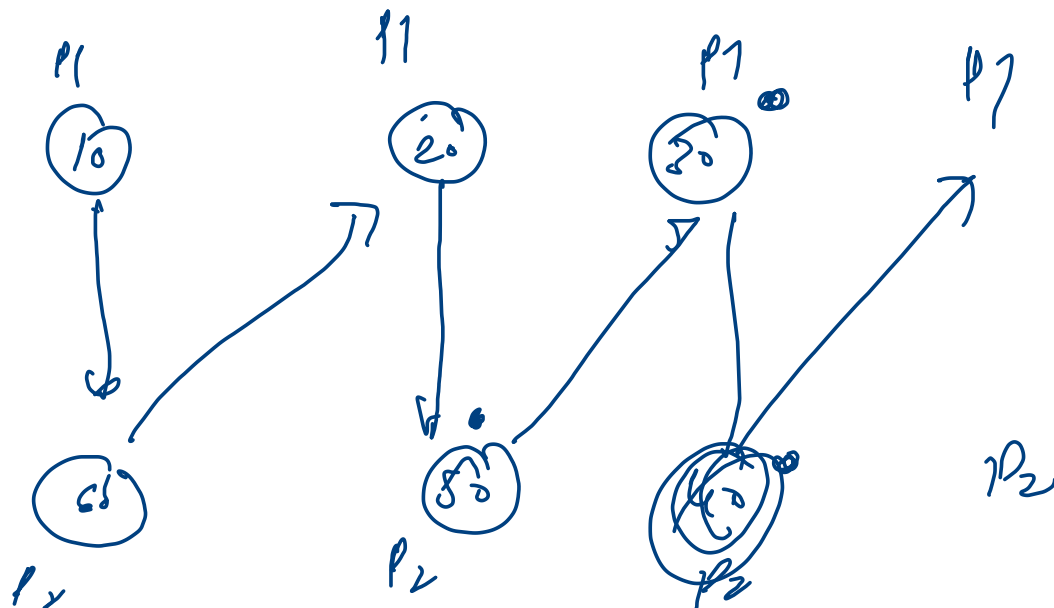
```
}
```

tail
odd



$p1 \neq null = prev \rightarrow p1$
 $p2 \neq null = prev \rightarrow p2$

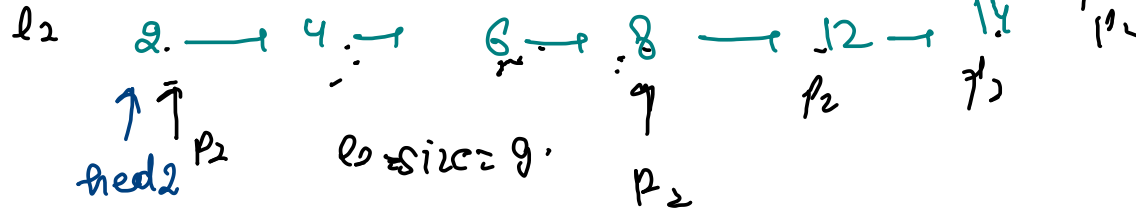
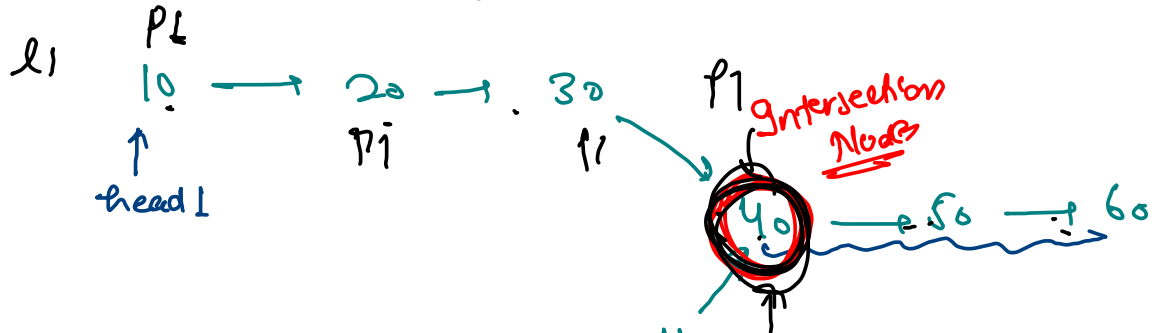
Even



Intersection Point of Linked List

$l1.size = 8$

$l1.size = 6$



$l2.size = 9$

$l2.size = 8$

Hint

$S1 > S2$

$diff = S1 - S2$

① move $p1$ with 'diff' step

② move $p1$ & $p2$ simultaneously,

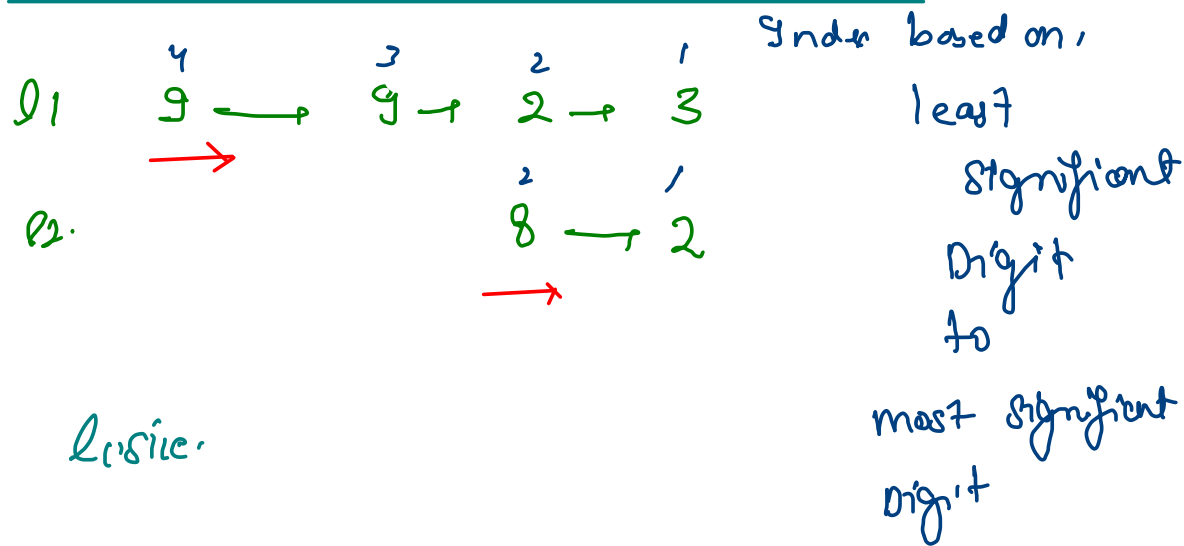
$S2 > S1$

$diff = S2 - S1$, $9 - 8 = 1$

① move $p2$ with 'diff' step

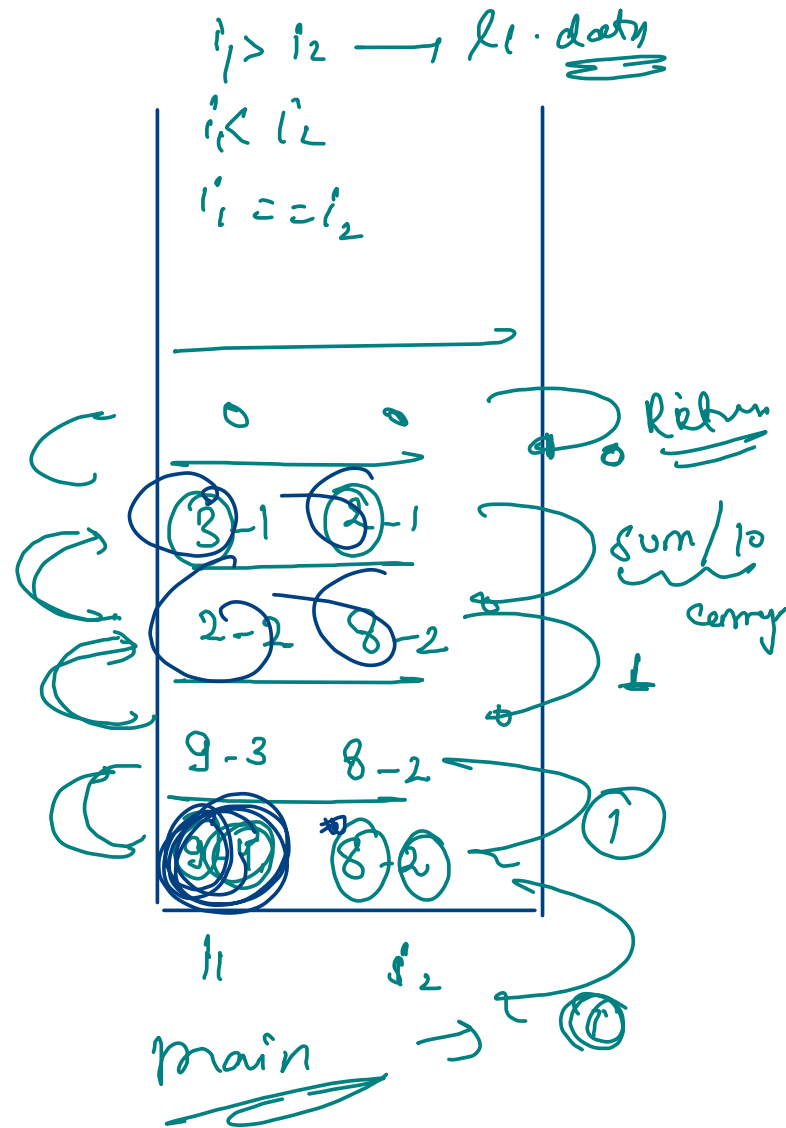
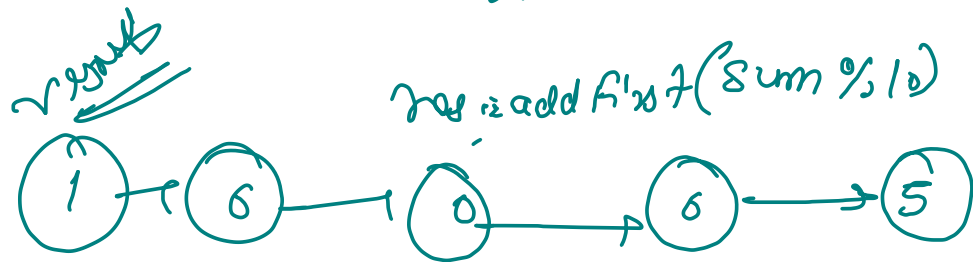
② move $p1$ & $p2$ simultaneously

Add - 2 linked list with Recursion.



Recursion

Static linked list

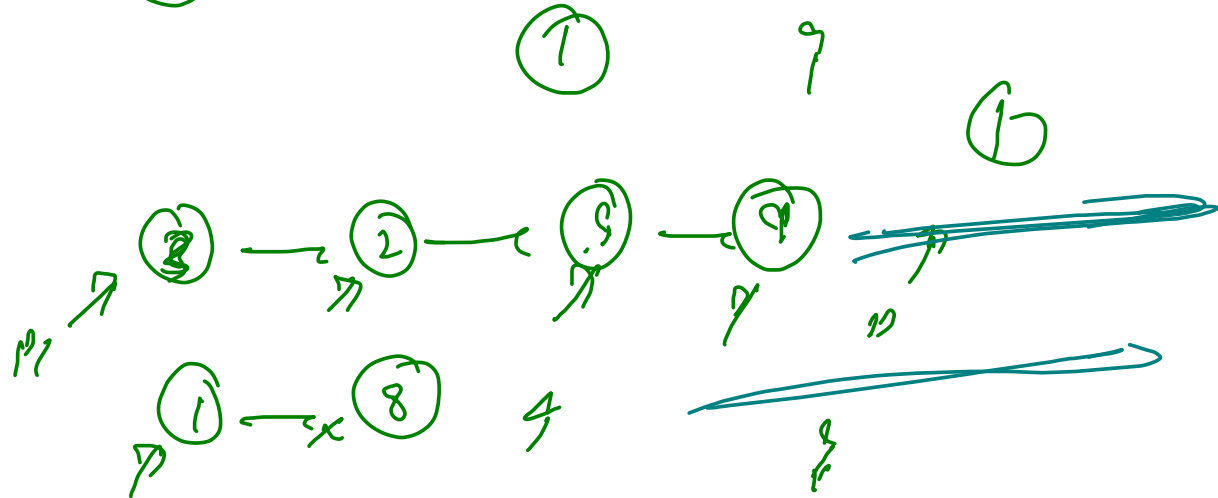


Q1



L1, rev. →

L2, rev.



res. →
add
if not

