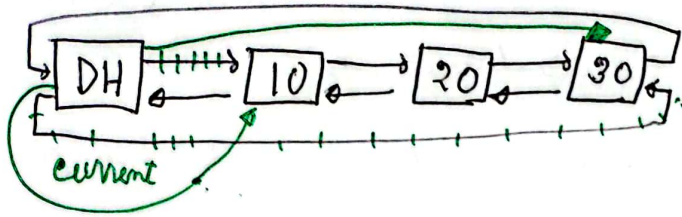


Doubly linked list reversal

IT-1



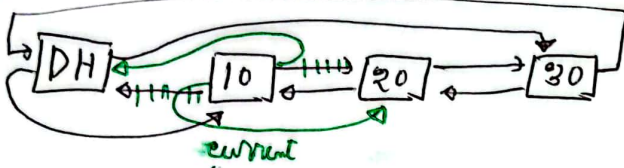
current = DH

Swap $\left\{ \begin{array}{l} \text{next} = 10 (\text{node}) \\ \text{prev} = 30 (\text{node}) \end{array} \right.$

→ After swap

$\left\{ \begin{array}{l} \text{next} = 30 \\ \text{prev} = \text{DH} \end{array} \right.$ after swap

IT-2

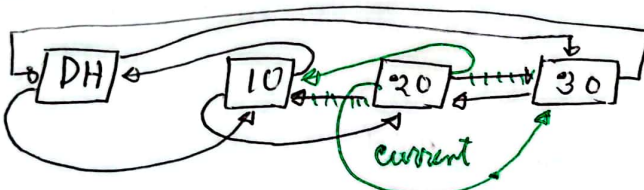


current = 10

$\left\{ \begin{array}{l} \text{next} = 20 \\ \text{prev} = \text{DH} \end{array} \right.$ swap

$\left\{ \begin{array}{l} \text{next} = \text{DH} \\ \text{prev} = 20 \end{array} \right.$ after swap

IT-3

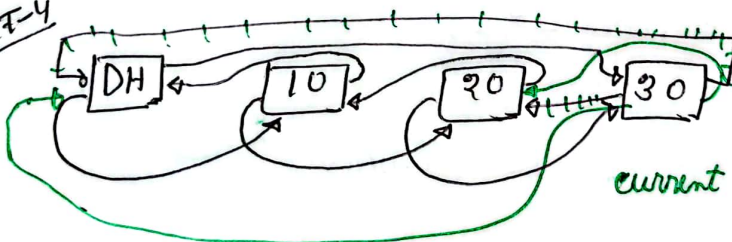


current = 20

$\left\{ \begin{array}{l} \text{next} = 30 \\ \text{prev} = 10 \end{array} \right.$ swap

$\left\{ \begin{array}{l} \text{next} = 10 \\ \text{prev} = 30 \end{array} \right.$ after swap

IT-4

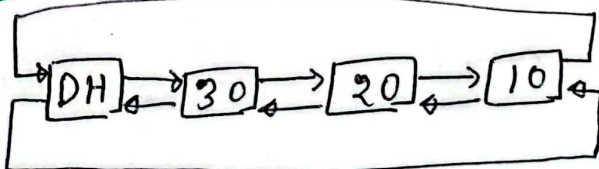


current = 30

$\left\{ \begin{array}{l} \text{next} = \text{DH} \\ \text{prev} = 20 \end{array} \right.$ swap

$\left\{ \begin{array}{l} \text{next} = 20 \\ \text{prev} = \text{DH} \end{array} \right.$ after swap

redrawn image of Iteration-4



Swapping 2 values

temp = a

a = b

b = temp

Swapping next & prev value of a node (current node)

temp = current_node.next

current_node.next = current_node.prev

current_node.prev = temp

(here) $a = \text{current_node.next}$

$b = \text{current_node.prev}$

def reverseLL(head):

if head.next == head:

print("empty LL")

return

current_node = head

while True:

swapping next & prev of current

$\left\{ \begin{array}{l} \text{temp} = \text{current_node.next} \\ \text{current_node.next} = \text{current_node.prev} \\ \text{current_node.prev} = \text{temp} \end{array} \right.$

current_node = current_node.prev

completed 1 full cycle.

$\left\{ \begin{array}{l} \text{if current_node} == \text{head}: \\ \text{break} \end{array} \right.$

Since next & previous have been swapped, in order to move forward $i = i.\text{prev}$ instead of $i = i.\text{next}$