Quick Sort

pivot 7

prev2

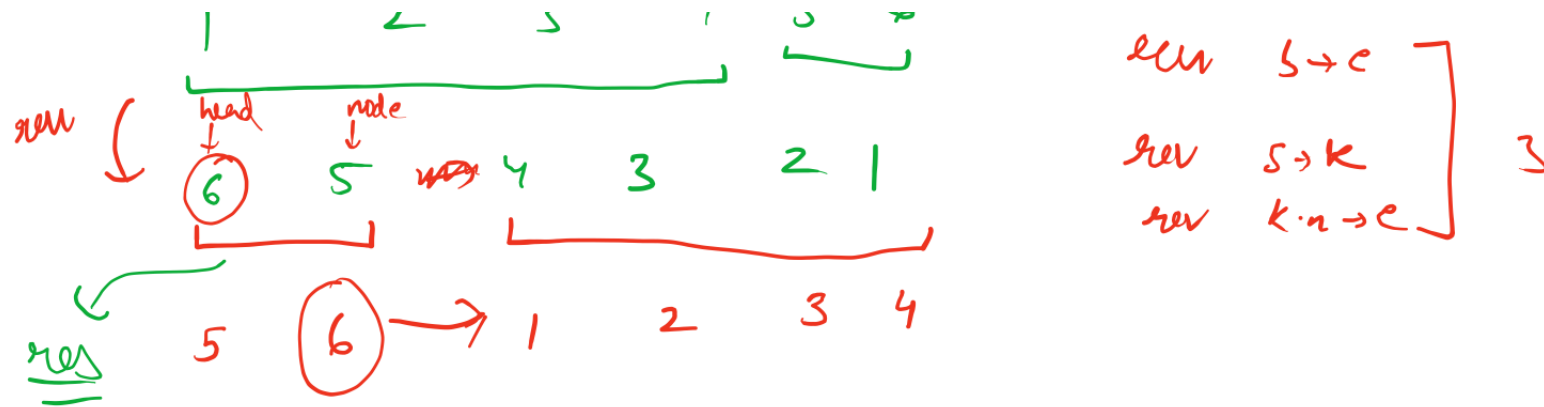head→ 7 6   19   8

$\overset{s}{\downarrow}$ (5)   3 $\overset{2}{8}$ $\overset{9}{8}$

$\overset{2}{19}$ $\overset{5}{19}$ $\overset{1}{6}$ $\overset{7}{6}$ $\overset{e}{\downarrow}$ 19

2   5   7   6

↑ prev   ↑

prev.prev   →(prev.next, end)

pivot=6

$\overset{5}{\downarrow}$ (6) $\overset{3}{3}$ $\overset{2}{2}$ $\overset{5}{5}$ (6) 7   19

↑ prev   ↑ curr

[1 3 2 5] 6 7

I 23

$$[1 \quad 3 \quad 2 \quad 5] \quad 6 \quad 7$$

	1	2	3	4	5	6 ^{n}
			2	3	4	5
2→and	6 1		1	2	3	4
↳ 5 6						

2

1   2   3   4   5   6

rev { head   node

6   5   ~~wgy~~ 4   3   2   1

res

5   6 → 1   2   3   4

ecn   5→e ⎤
rev   5→k ⎥ 3
rev   k·n→e ⎦

$1 \rightleftharpoons 2 \rightleftharpoons 3 \rightleftharpoons 4 \rightleftharpoons 5 \rightleftharpoons 6$

Doubly LL
↳ where we can move in both dir^n

Node {
    data
    Node next, prev;
}

head
nn
⇒ $\bigcirc \rightleftharpoons O \rightleftharpoons O \rightleftharpoons O \rightleftharpoons O$

nn.next = h
h.prev = nn
h = nn

head

$1 \rightleftarrows 3 \rightleftarrows 6 \rightleftarrows 5 \rightleftarrows 6 \rightleftarrows$ (null)

prev

tail

dH

dH.next

node

$\checkmark$ (#) $\rightleftarrows$ (1) $\rightleftarrows$ (3) $\rightleftarrows$ (5)

null

curr   n   tail

$6 \rightleftarrows 5 \rightleftarrows 1 \rightleftarrows 6$

h, t

$6 \leftarrow$ null

(head) ??

$6 \rightleftarrows 6 \rightleftarrows 5 \rightleftarrows 6$

null

10:05

Flatten DLL

ahead

(1) $\rightleftarrows$ (2) $\rightleftarrows$ (3)   [$4 \rightleftarrows 5 \rightleftarrows 6 \rightleftarrows$

(7) $\rightleftarrows$ (8)   [$9 \rightleftarrows 10$
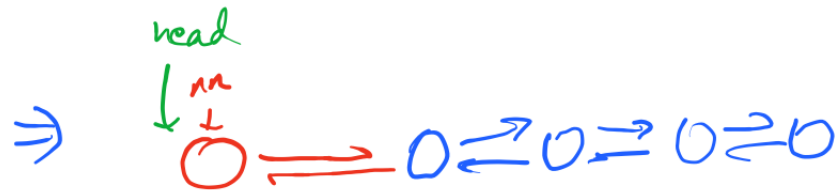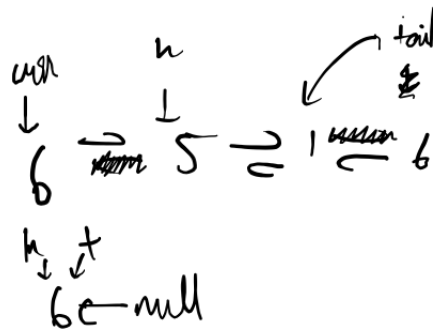
(11) $\rightleftarrows$ 12

node
check child
  → find tail
    → connect tail with
       ahead
    → curr with child

$1 \Rightarrow 2 \rightarrow 3 - 7 - 8 = 11 = 12 = 9 = 10 = 4 = 5 = 6$

google $\cong$

$\curvearrowright$ visit
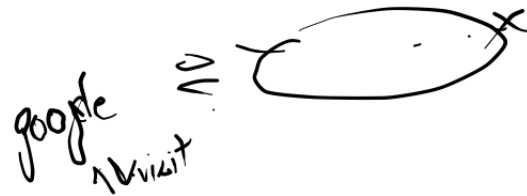
Circular LL $\Rightarrow$ tail.next=head

head

tail

$1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5 \rightarrow null$

h

$1 \rightarrow 2 \Rightarrow$ Circular LL

t 5   2 $\hookrightarrow$ tail.next = head

4 $\leftarrow$ 3
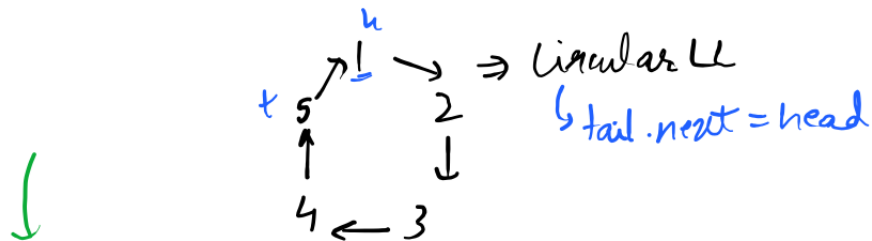
curr $\rightarrow$ head

curr $\rightarrow$ curr.next

curr.next = head

$\Downarrow$

tail