Linked list intersect

List A = 4 1 8 4 5
List B = 5 6 1 8 4 5

$\boxed{4} \rightarrow \boxed{1}$
$\searrow$
$\boxed{8} \rightarrow \boxed{4} \rightarrow \boxed{5}$
$\boxed{5} \rightarrow \boxed{6} \rightarrow \boxed{1} \nearrow$
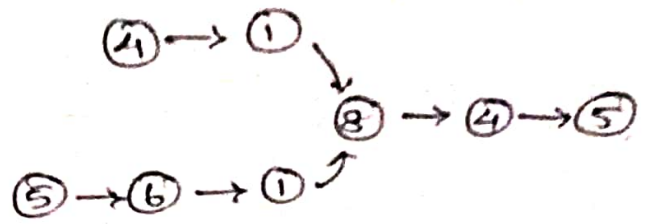
PA at 4 (List A start)
PB at 5 (List B start)

moving forward

PA = 4 1 8 4 5 null jumping to List B
(head 5)

PB = 5 6 1 8 4 5 null jumping to List A
(head 4)

After switching:

PA (list B) 5 6 1 8 4 5

PB (list A) 4 1 8 4 5

PA traveled → list A + list B.

PB traveled → list B + list A.

---

list A = a
list B = b
intersection = c

PA travels = a + c + b + c   a + b + 2c

Pb travels = b + c + a + c   a + b + 2c

$$1-2-3-4-5-6$$
$$|$$
$$7-8-9-10$$
$$|$$
$$11-12$$

Stack [1]

Result → empty.

① out

Stack [2]

Result = [1 → 2]

② out.

Stack [3]

Result = [1 → 2 → 3]

③ out

Stack [4, 7] → child goes in first

Result = [1 → 2 → 3 → 7]

⑦ out

Stack [4, 8]

Result = [1 → 2 → 3 → 7 → 8]

⑧ out

Stack [4, 9, 11] child goes in

Result = [1 → 2 → 3 → 7 → 8 → 11]

⑪ (out)

Stack [4, 9, 12]

Result = [1 → 2 → 3 → 7 → 8 → 11 → 12]

no next / no child

linking back.

---

⑫ out

Stack = [4, 9]

Result = [1 → 2 → 3 → 7 → 8 → 11 → 12]
→ 9.

Same

⑨ out

Stack = [4, 10]

Result = [1 → 2 → 3 → 7 → 8 → 11
→ 12 → 9]
→ 10

no next / no child

⑩ out

Stack = [4, 5]

Result = [1 → 2 → 3 → 7 → 8 → 11
→ 12 → 9 → 10 → 4]

④ out

Stack = [5]

Result = [1 → 2 → 3 → 7 → 8 → 11
→ 12 → 9 → 10 → 4 → 5]

⑤ out

Stack = [5, 6]

Result:
1 → 2 → 3 → 7 → 8 → 11 → 12 → 9
→ 10 → 4 → 5

Skiplist

[1 2 3 0 4 1 0 1 1]

Step ①

empty skiplist

skiplist = { }

step ②

skiplist.add (1)

skiplist = {1}

output = null
(add x)
nothing.

step ③

skiplist.add (2)

skiplist = {1,2}.

output = null.

step - ④

skiplist.add (3)

skiplist = {1,2,3}

output = null

step -⑤

skiplist.search (0) } checks.

sl = {1,2,3}

output = false

step -⑥

skiplist.add (4)

sl = {1,2,3,4}

output = null

step -⑦

skiplist.search (1)

1 is present

o/p = TRUE.

step -⑧

skiplist.erase (0)

0 is NOT present.

o/p = false.

step -⑨

skiplist.erase (1)

skiplist = {2,3,4}

o/p = true.

step -⑩

skiplist.search (1)

not found

o/p = false

[30,40,50,60,70,90]

skiplist → contains various levels.

level=3	30			60		90	
Level 2	30		50			70.	90
Level -1	30	40	50	60		70	90

want to add 80 and 45

Adding 80 ⇒ sorted array.

level -3	30			60		90	
Level -2	30		50		80	90	
Level -1	30	40	50	60	70	80	90

After insertion

[30, 40, 50, 60, 70, 80, 90]