1.c

input : 1␣2␣3␣4\n

output : Head → 4 → 3 → 2 → 1 → NULL

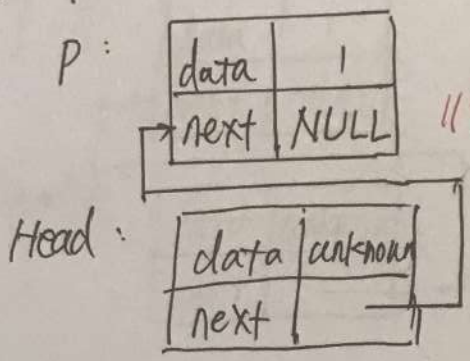
step : (1) Head

data	unknown
next	NULL

↓

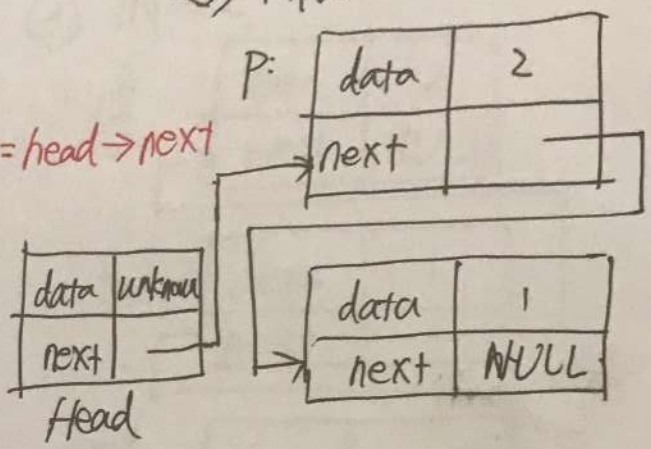
do while loop

(2) input 1 :

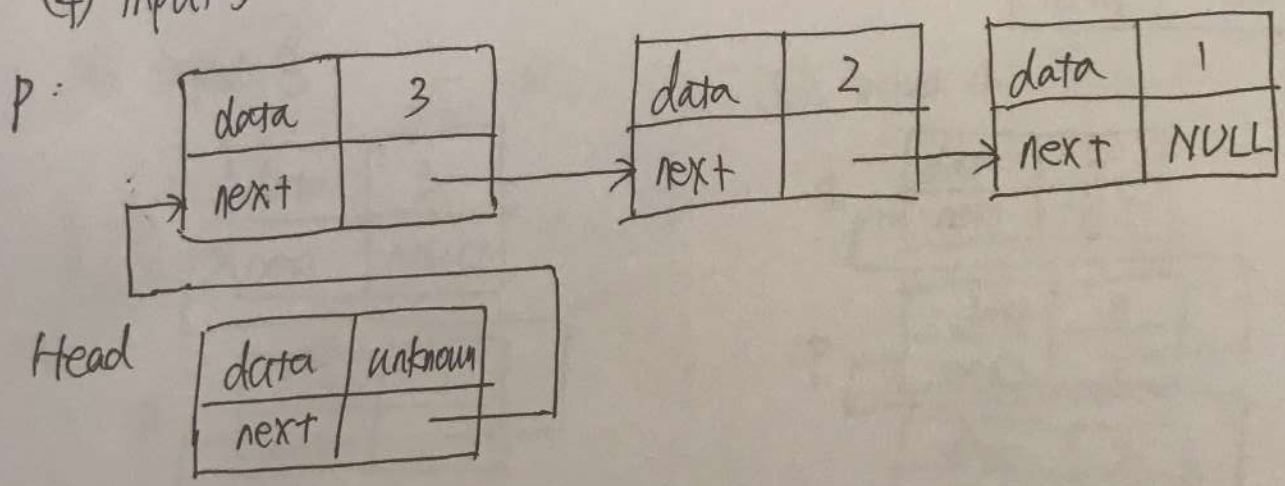


// p→next = head→next

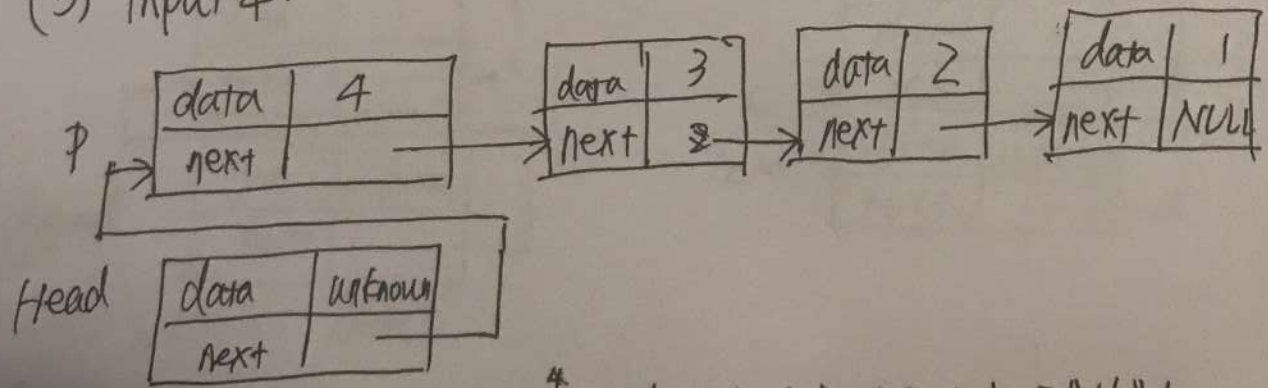
(3) input 2 :



(4) input 3 :



(5) input 4 :



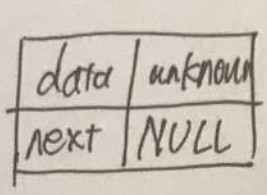
(6) input : \n return : Head → 4 → 3 → 2 → 1 → NULL

2.C

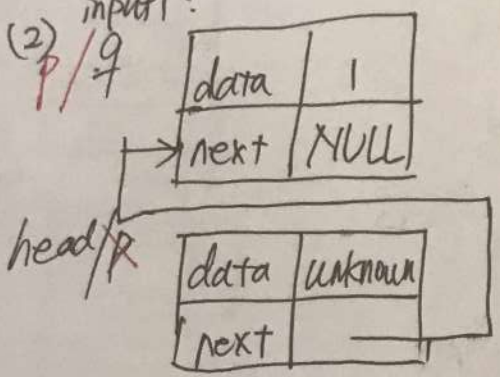
input: 1␣2␣3␣4

output: Head→1→2→3→4→NULL

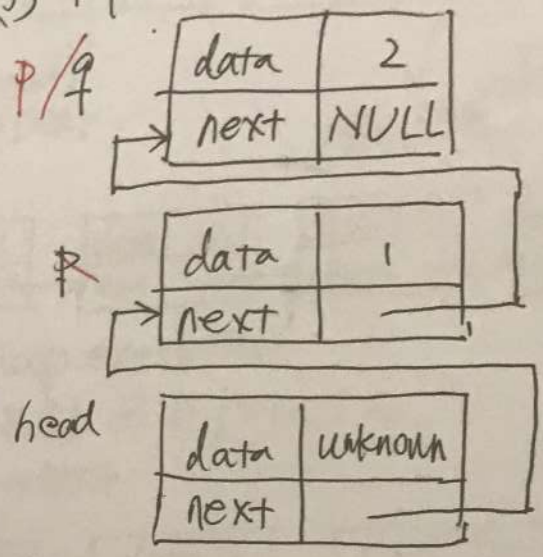
step: (1)



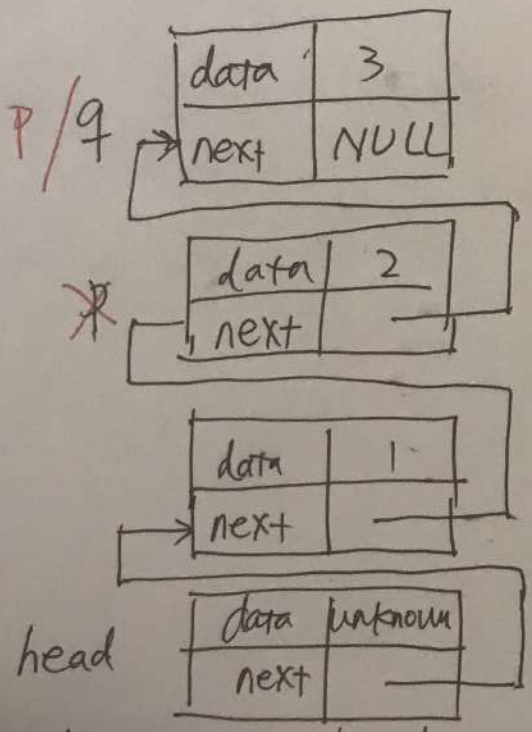
(2) input1:



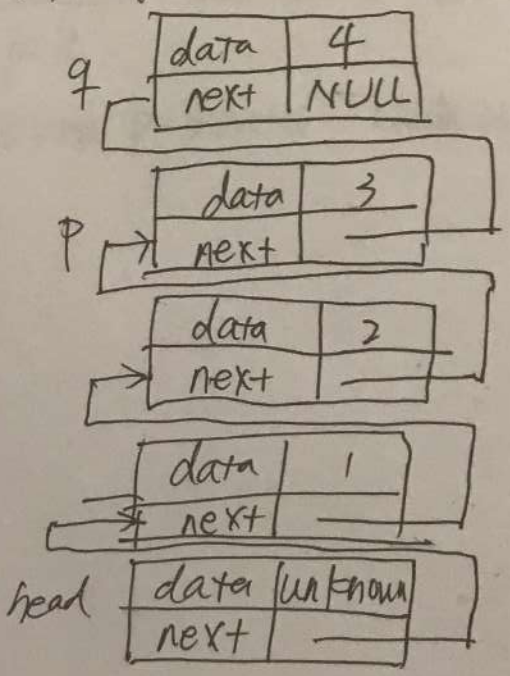
(3) input2:



(4) input 3:



(5) input 4:



(6) return: head

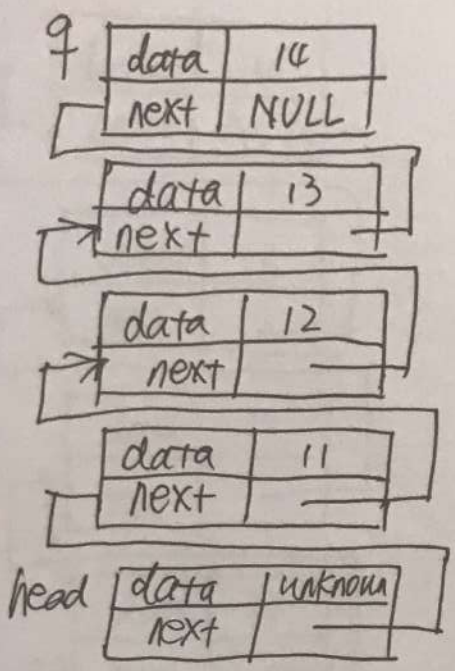
Head→1→2→3→4→NULL

3.C. get the element in a Linked List

Input: 11␣12␣13␣14

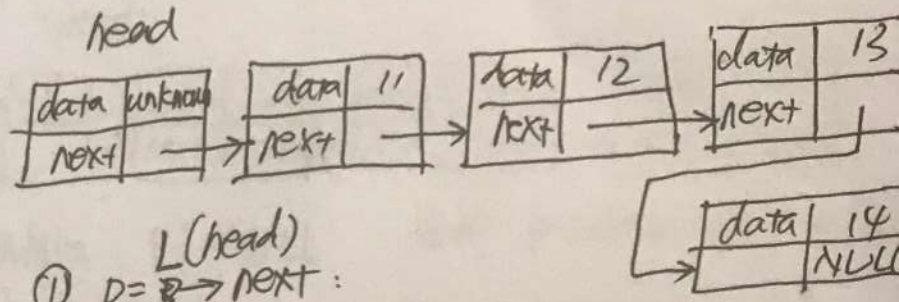
Steps: (1)(2)(3)(4) same as question 2C.

(5) after input 14

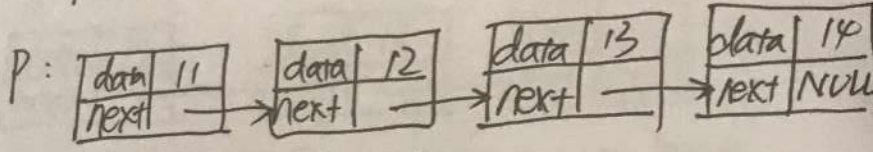


(6) get_elem (*L, i)

Let i=2. *L = head, j=1



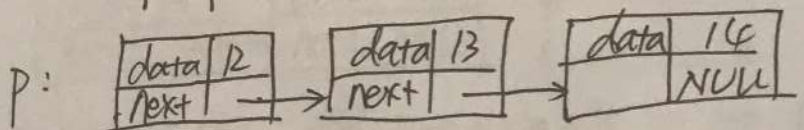
① p = L(head) → next :



② while loop execution:

p!=NULL && j=1<i=2.

p=p→next



j=2

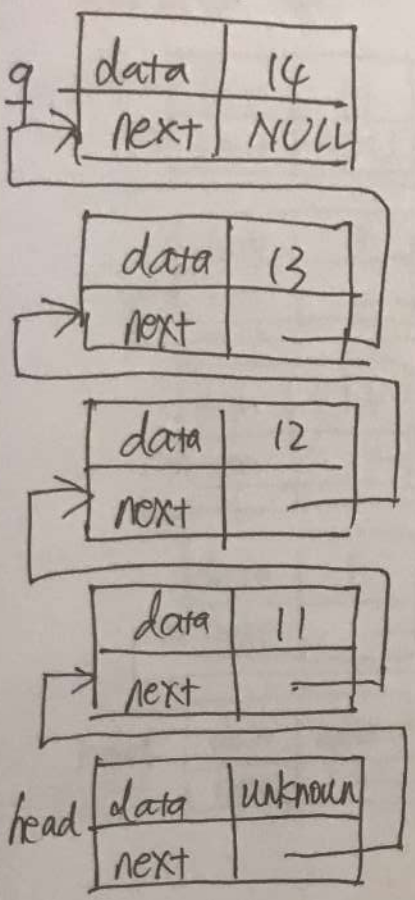
③ return p→data which is 12

4.C Locate Node in a Linked List

input: 11 ␣ 12 ␣ 13 ␣ 14

steps (1) (2) (3) (4) same as questions 2.C

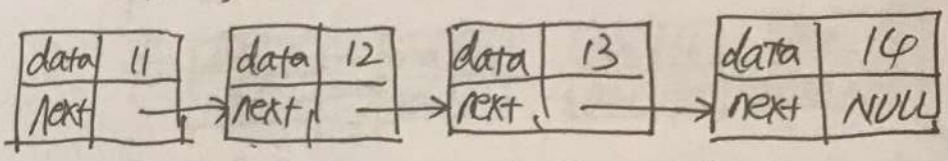
(5) after input 14



(6) Locate_Node (*L, key)

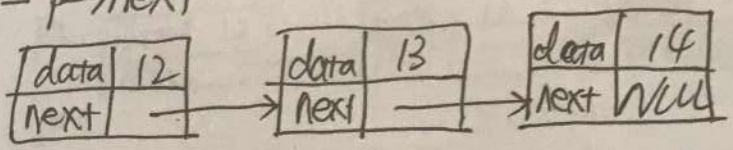
p = L->next : key = 13

(head)



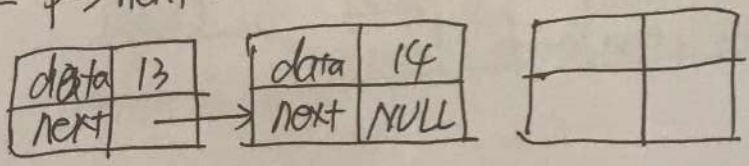
① While p != NULL && p->data = 11 != 13

p = p->next:



② p != NULL && p->data = 12 != key: 13

p = p->next:



③ p != NULL && p->data = 13 = key 13

execute: p->data == key

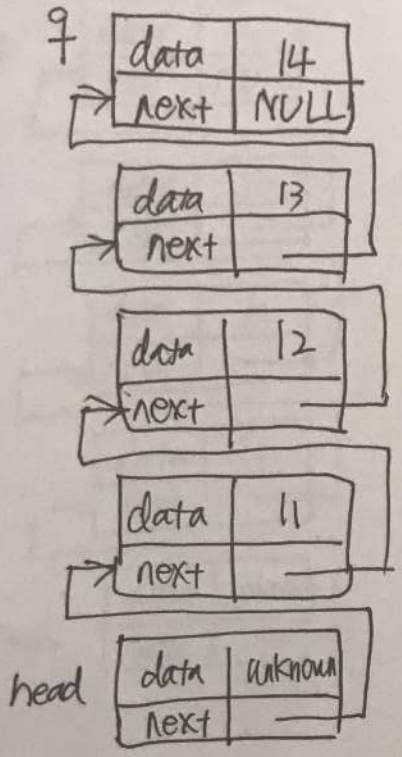
print "It is in the list \n"

5.C. Insert Element to a Linked List

input: 11␣12␣13␣14

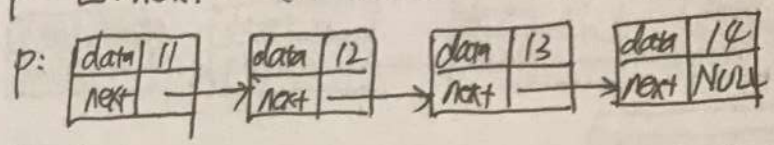
Steps (1)(2)(3)(4) same as questions2.C

(5) after input 14



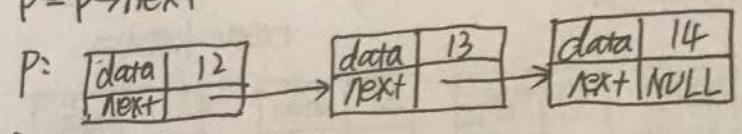
(6) Insert_LNode (*L, i, ElemType e)

p = L→next: (L=head) j=0, i=2, elem=123



① while: p!=NULL && j=0, i-1=1 j<i-1

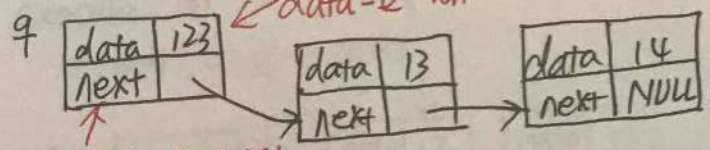
p=p→next



j=1

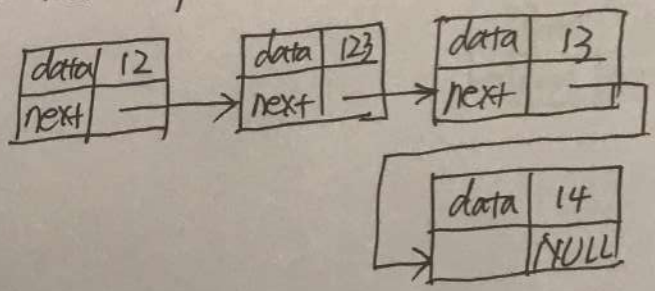
② execute: j=1=i-1=1

data=e which is 123



q→next=p→next

p→next=q:

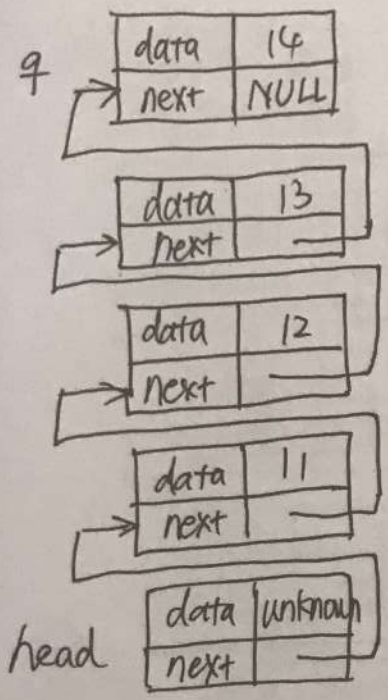


6c. Delete element in a Linked List by Index

input : 11 ␣ 12 ␣ 13 ␣ 14

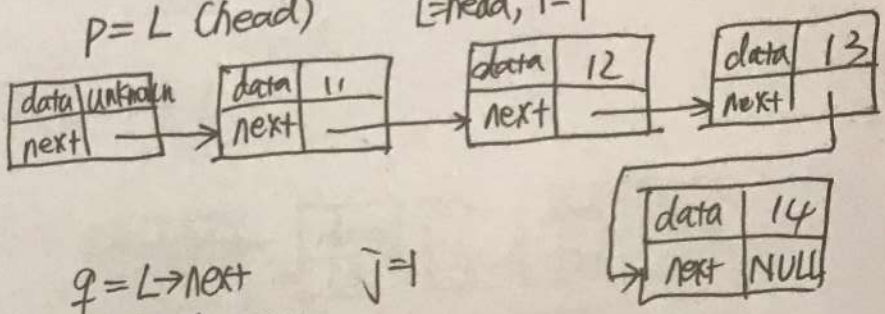
Steps (1) (2) (3) (4) same as question 2.C.

(5) after input 14.



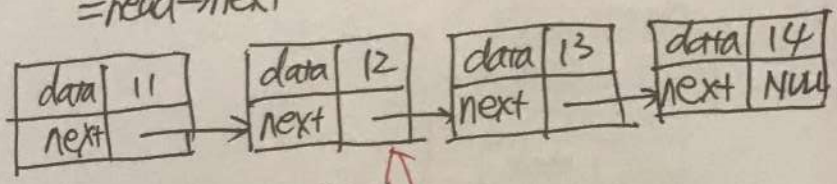
(6) Delete_LinkList (CLNode *L, int i)

p = L (head) L=head, i=1



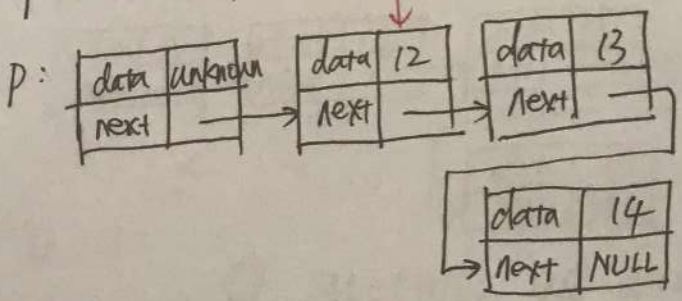
q = L→next j=1

=head→next



execute i=1 = j=1

p→next = q→next

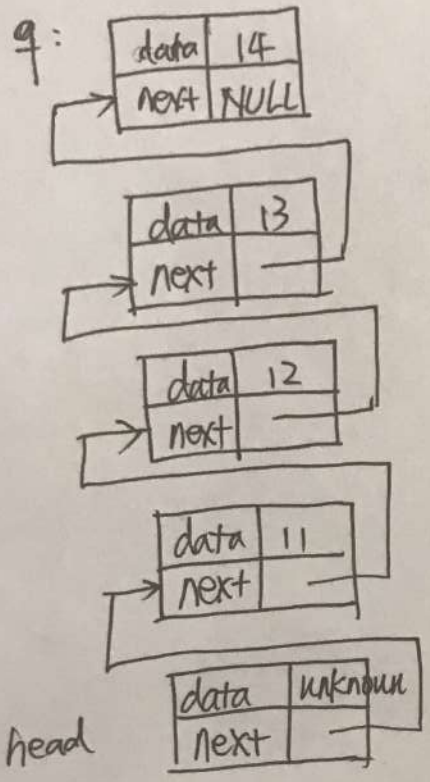


7.C. Delete element by key.

input : 11␣12␣13␣14

Step (1)(2)(3)(4) same as question 2.C.

(5) after input 14

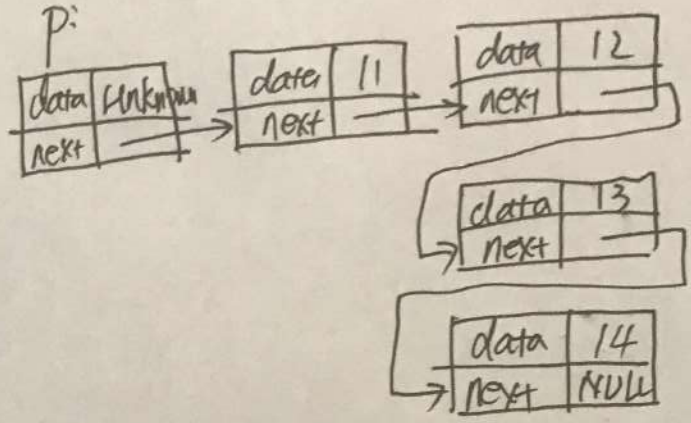


(6) Delete element by key

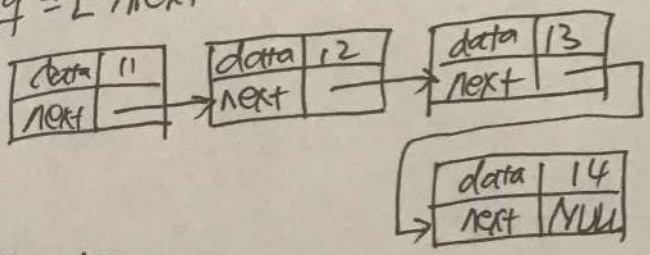
LNode *L int key = 1

=head

① p=L

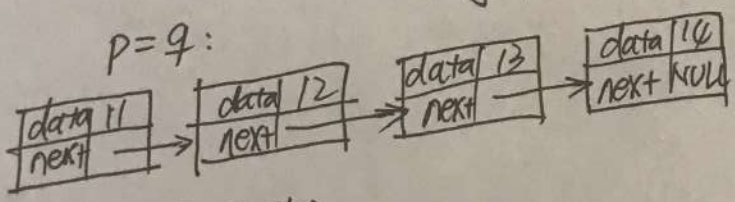


q=L->next:

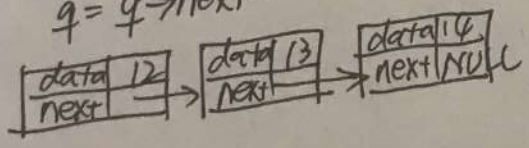


② while: q!=NULL && q->data = 11 != key=1

p=q:



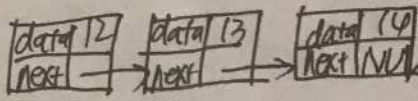
q=q->next:



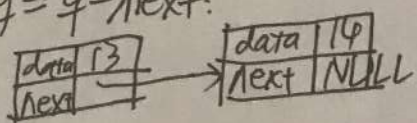
② q!=NULL && q->data=12 != key=1

Execute:

p=q:

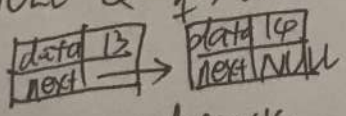


q=q->next:

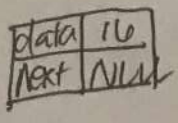


④ while: q!=NULL & q->data=13 != key=1

execute: p=q:

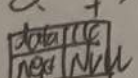


q=q->next:

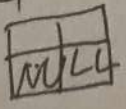


⑤ while: q!=NULL & q->data=14 != key=1

execute: p=q:



q=q->next:



⑥ q=NULL execute: printf("Not existing element!\n")