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Linked List - Part IV

Course on Data Structure

Pankaj Sharma • Lesson 10 • July 18, 2024

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CS & IT Engineering

Data Structure

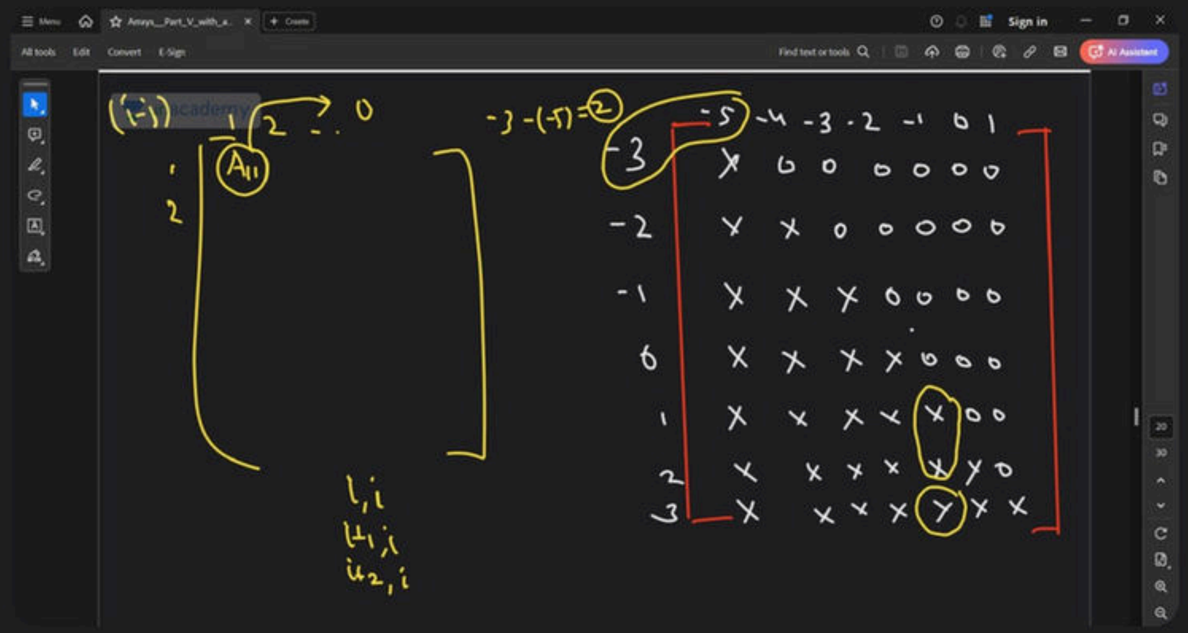
Linked List

Lecture Number- 10

By- Pankaj Sir

▲ 3 • Asked by Anubhav

sir in this q shouldn't the first row have 2 eles?



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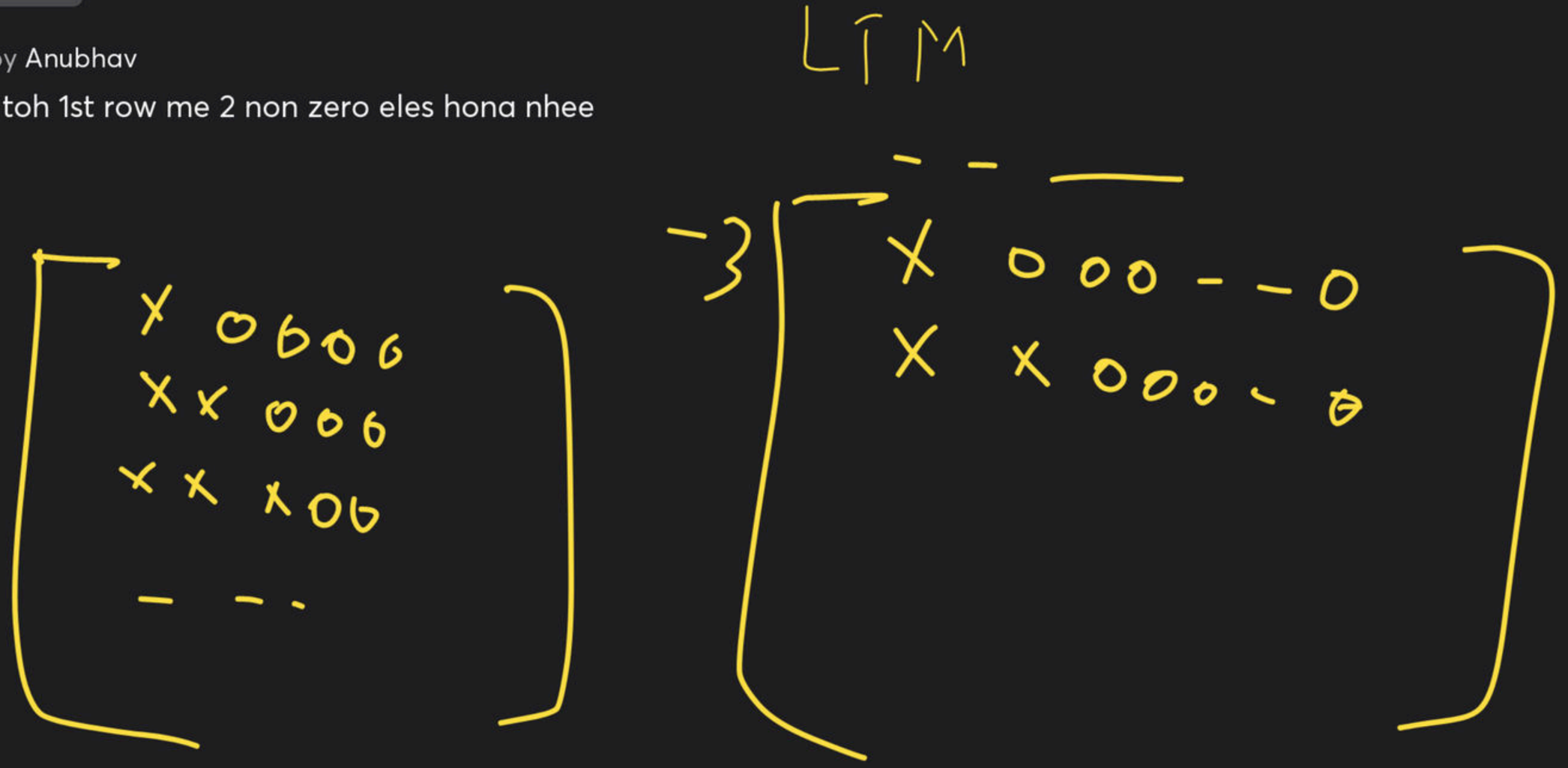
▲ 2 • Asked by Anubhav

sir but -3>-4 toh 1st row me 2 non zero eles hona nhee chahiye?



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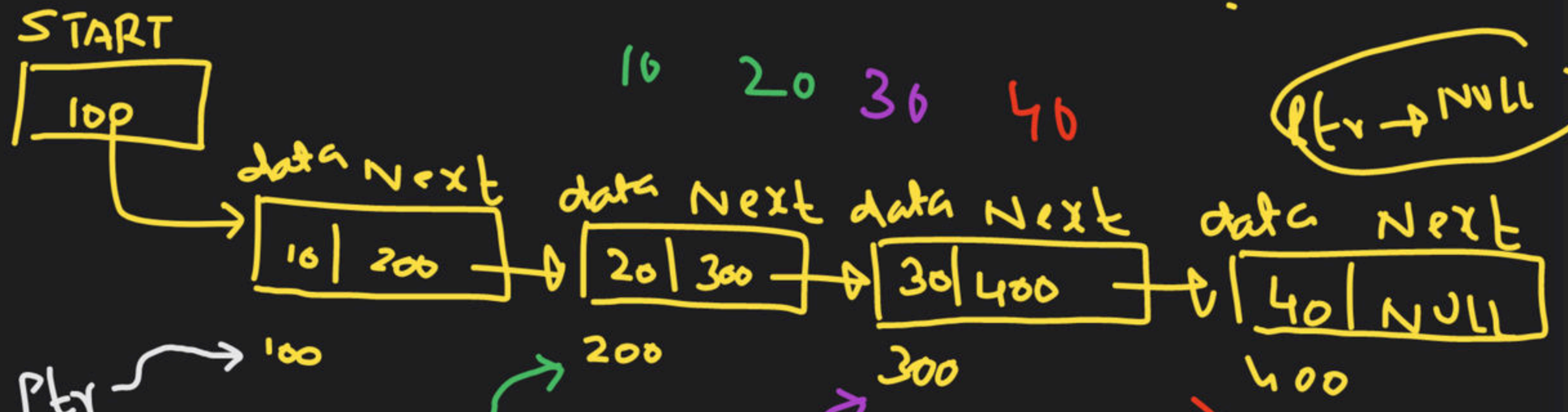
Given a linked list ... ?

(i) START is a global variable.

Ptr = NULL

Ptr → data ;
Ptr → Link ;

Given a L.L. traverse it.




```
struct Node *Ptr;
Ptr = START
(i) valid address ?
    pf("%d", Ptr->data);
✓ Ptr = Ptr->Next;
```

(ii) Valid address?

```
pf("%d", Ptr->data);
Ptr = Ptr -> Next
```

(iii) Valid address?

```
pf("%d", Ptr->data);
Ptr = Ptr -> Next;
```

(iv) Invalid addr.

```
pf("%d", Ptr->data);
Ptr = Ptr -> next
```

v) valid add → No

```
while (Ptr != NULL)
{
    pf("%d", Ptr->data);
    Ptr = Ptr->Next;
}
```

```
struct Node {                    Global var.
    int data;
    struct Node *Next;
} *START = NULL

void Traversal() {
    struct Node *ptr;
    ptr = START;
    while (ptr != NULL) {
        pf("%d", ptr->data);
        ptr = ptr->next;
    }
}

void main() {
    {
        ...
    }
    Traversal();
    ...
}
```

```
void Traversal() {
    struct Node * ptr;
    ptr = START;
    while (ptr != NULL) {
        pf ("%d", ptr -> data);
        ptr = ptr -> next;
    }
}
```

ptr != NULL

NULL != NULL

↓

false

```
struct Node {

};
```

Memory allocate ✗

```
struct Node *START = NULL;
```

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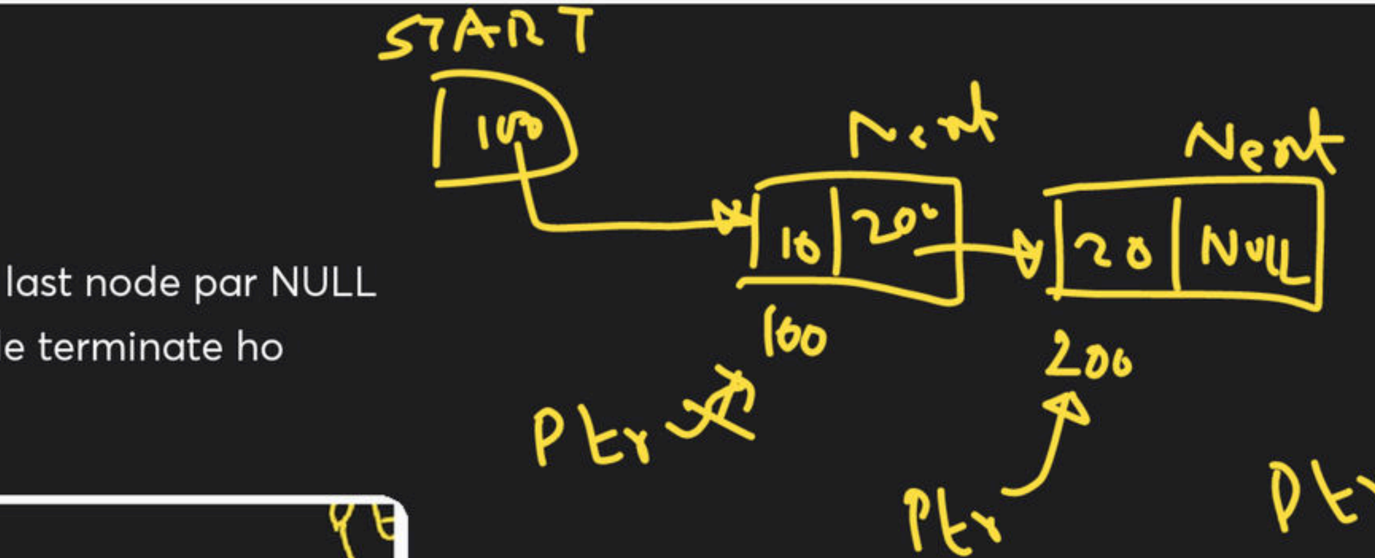
▲ 2 • Asked by Parth

sir isme last element kese print hoga as last node par NULL hai to last element to print hone se pehle terminate ho jayega loop

```
void Traversal() {
    struct Node *ptr;
    ptr = START;
    while(ptr!=NULL){
        pf("%d", ptr->data);
        ptr = ptr->next;
    }
}
```



(i) ptr != NULL

true

pf → 10

ptr = ptr → next (200)

(ii) ptr != NULL

true

pf 20

ptr

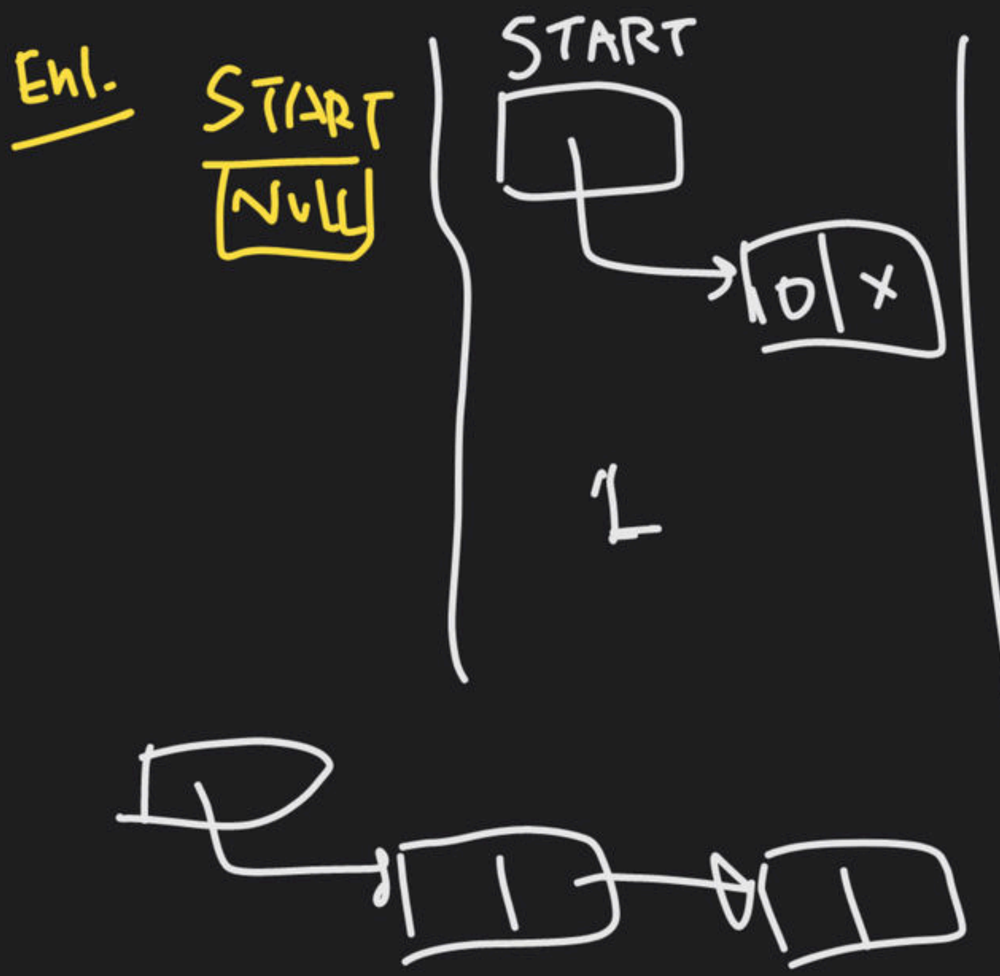
= ptr → next

(iii) NULL != NULL

→ false

Given a linked list, count the no. of nodes in L.L.

Eml.

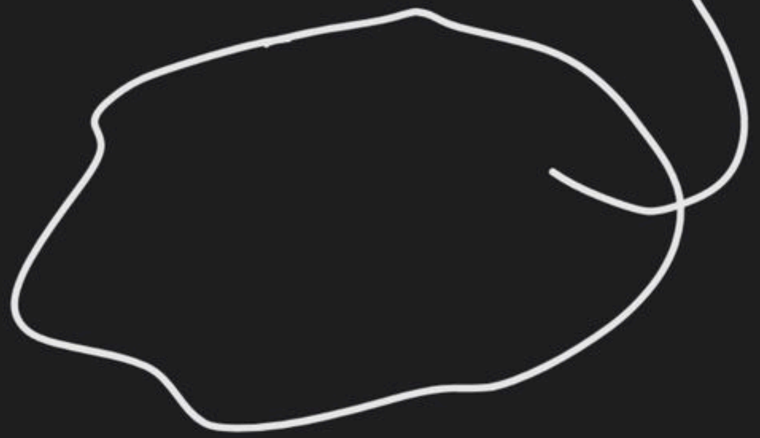



```
ptr = START;
while( ptr! = NULL)
    {
    pf (" %d", ptr->data);
    ptr = ptr->next;
    }
```

2

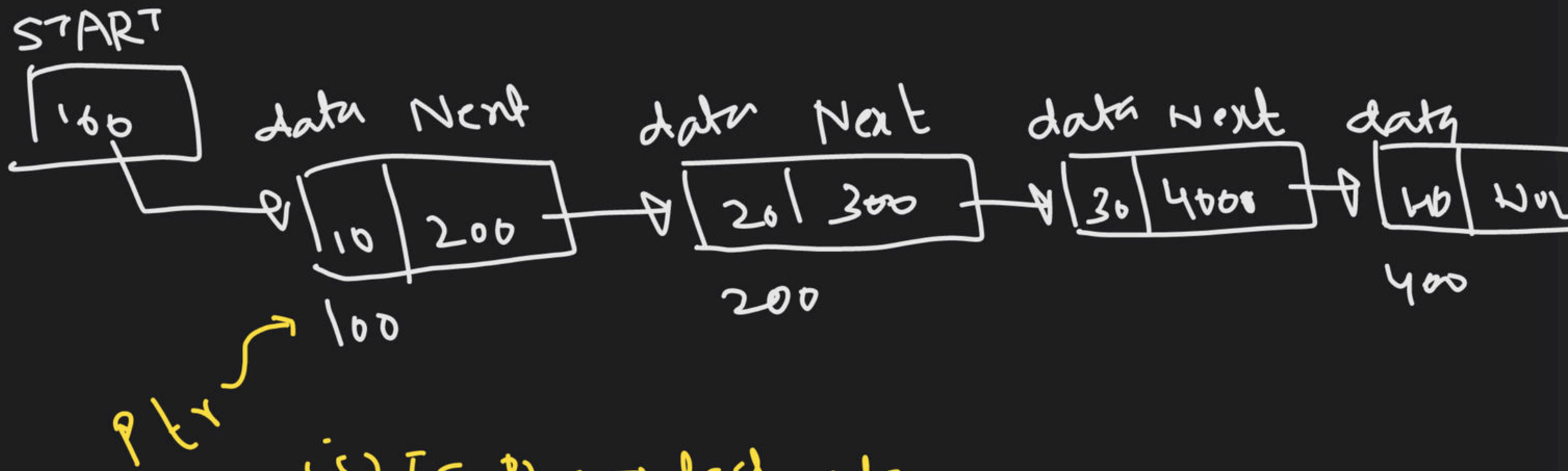
```
int count(){
    struct Node *ptr;
    int c=0;
    ptr = START;
    while(ptr!=NULL)
        {
            ctr;
            ptr=ptr->next;
        }
    return c;
}
```

C++ ⇒ superset of C



C with Classes

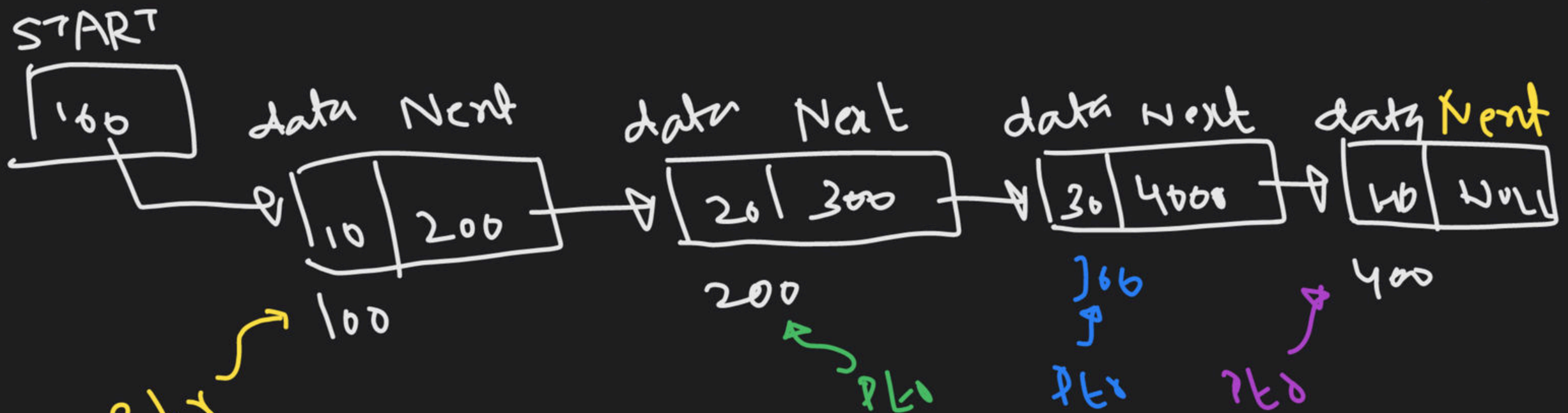
3 Given a linked list, print last node data (5 min)



(i) Is ptr ⇒ last node

↓NO

ptr = ptr → Next



(i) Is ptr ⇒ last node

↓NO

ptr = ptr → Next

(ii) Is ptr ⇒ last node

↓NO

ptr = ptr → Next;

(iii) Is ptr ⇒ last node

↓NO

ptr = ptr → Next;

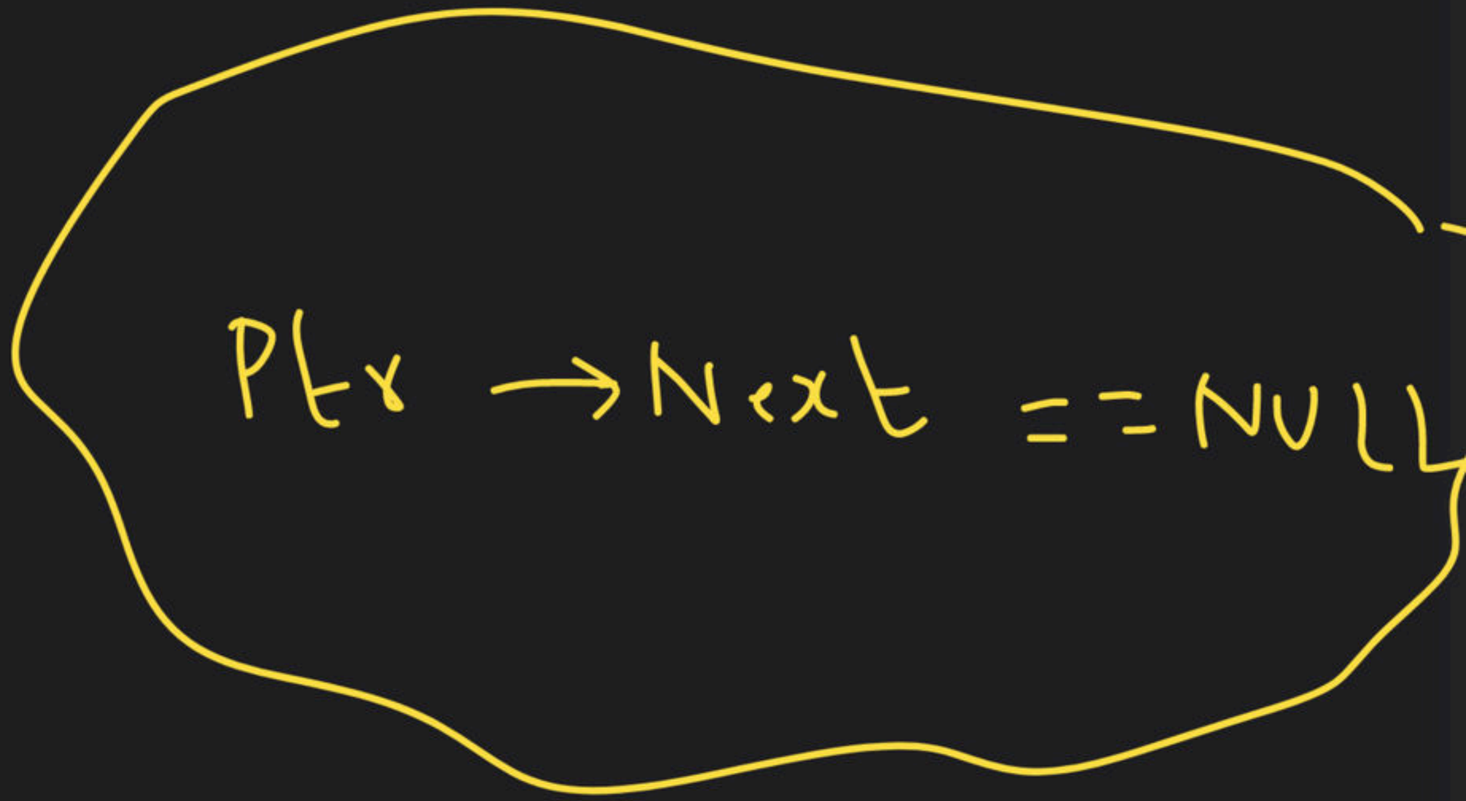
(iii) Is ptr ⇒ last node

↓yes

Incorrect

```
While ( Ptr not reached last node)
      {
        Ptr = Ptr -> Next;
      }
```

Property of last node



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```
struct Node * ptr;
ptr = START;
```

Incorrect

LL is Empty

```
while ( NULL -> Next
        ptr -> Next != NULL)
        {
            ptr = ptr -> Next;
        }
```

```
struct Node * ptr;
ptr = START;
if (START == NULL)
    return;
```

Ensured that atleast 1 node exist →

```
while (ptr -> Next != NULL)
{
    ptr = ptr -> Next;
}
```

Search in LL

3 code ⇒

Given a LL and a integer value, find whether that value is present in LL or not.

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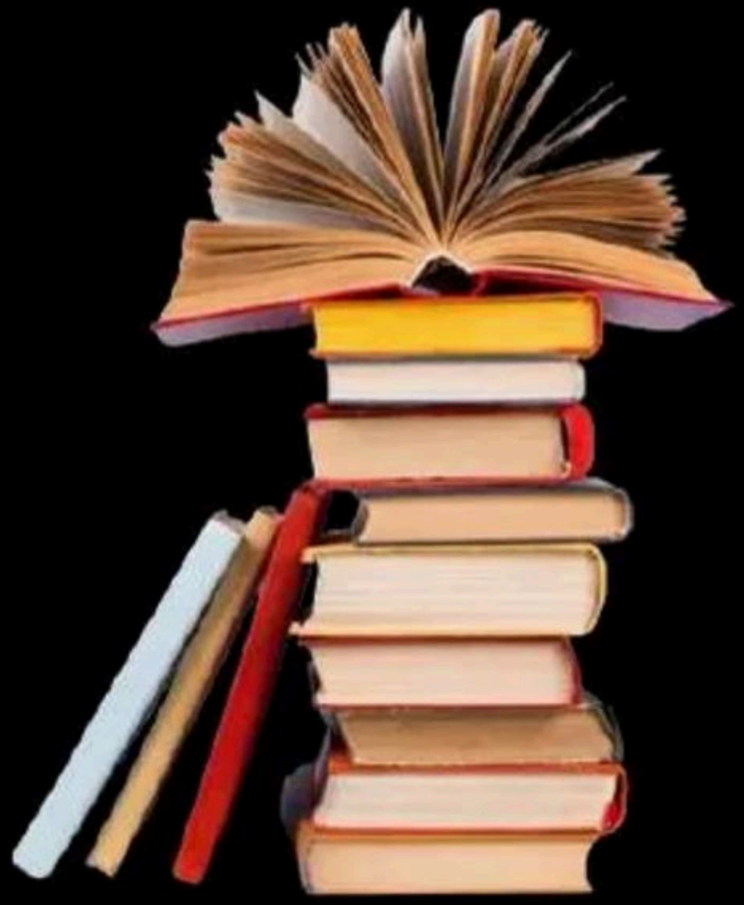
Topics

to be covered



1. Linked List

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THANK YOU!

Here's to a cracking journey ahead!