unacademy

Linked List - Part III

Course on Data Structure

Pankaj Sharma • Lesson 9 • July 17, 2024

unacademy

CS & IT Engineering

Data Structure

Linked List- II

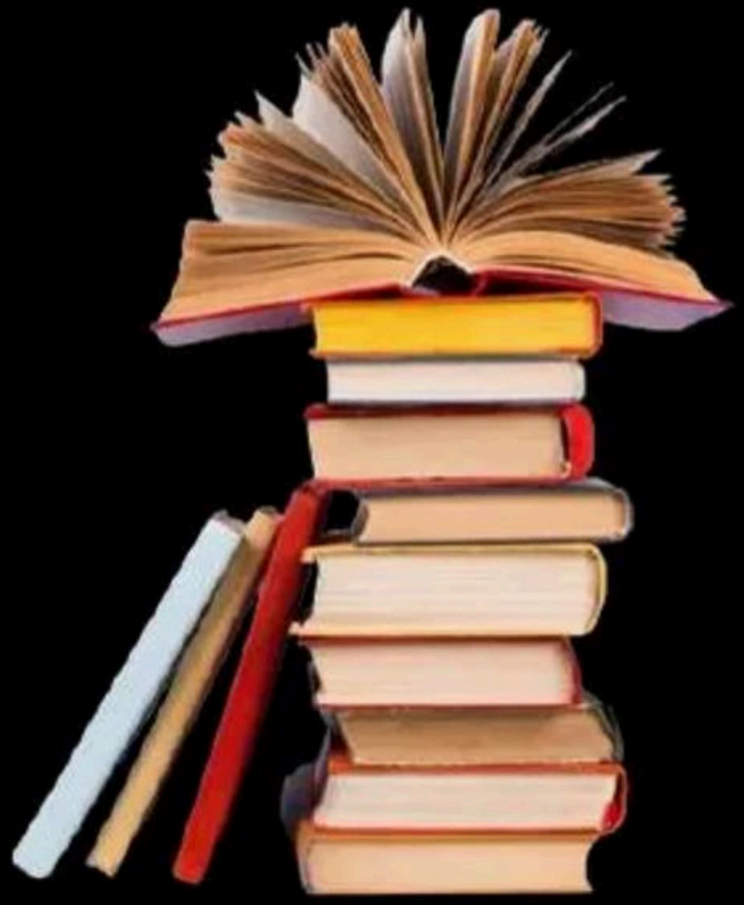
Lecture Number- 09

By- Pankaj Sir

unacademy

Topics

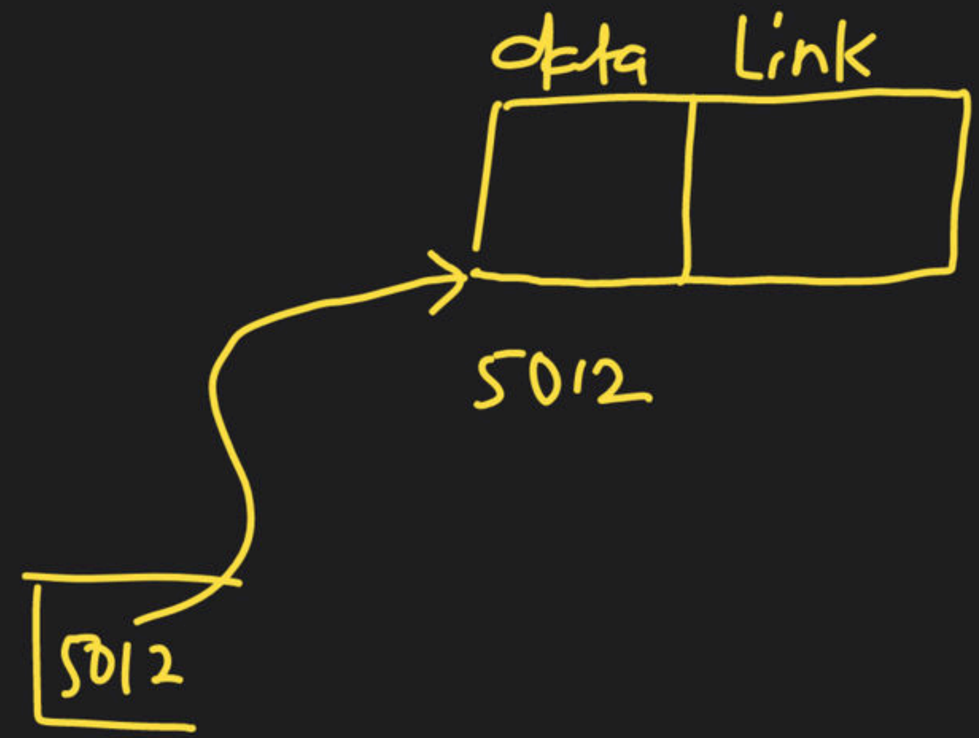
to be covered



1. Linked List

```
struct Node {
    int data;
    struct Node *Next;
};
void main() {
    struct Node *temp;
    temp = malloc(sizeof(struct Node));
```

temp is a pointer to structure



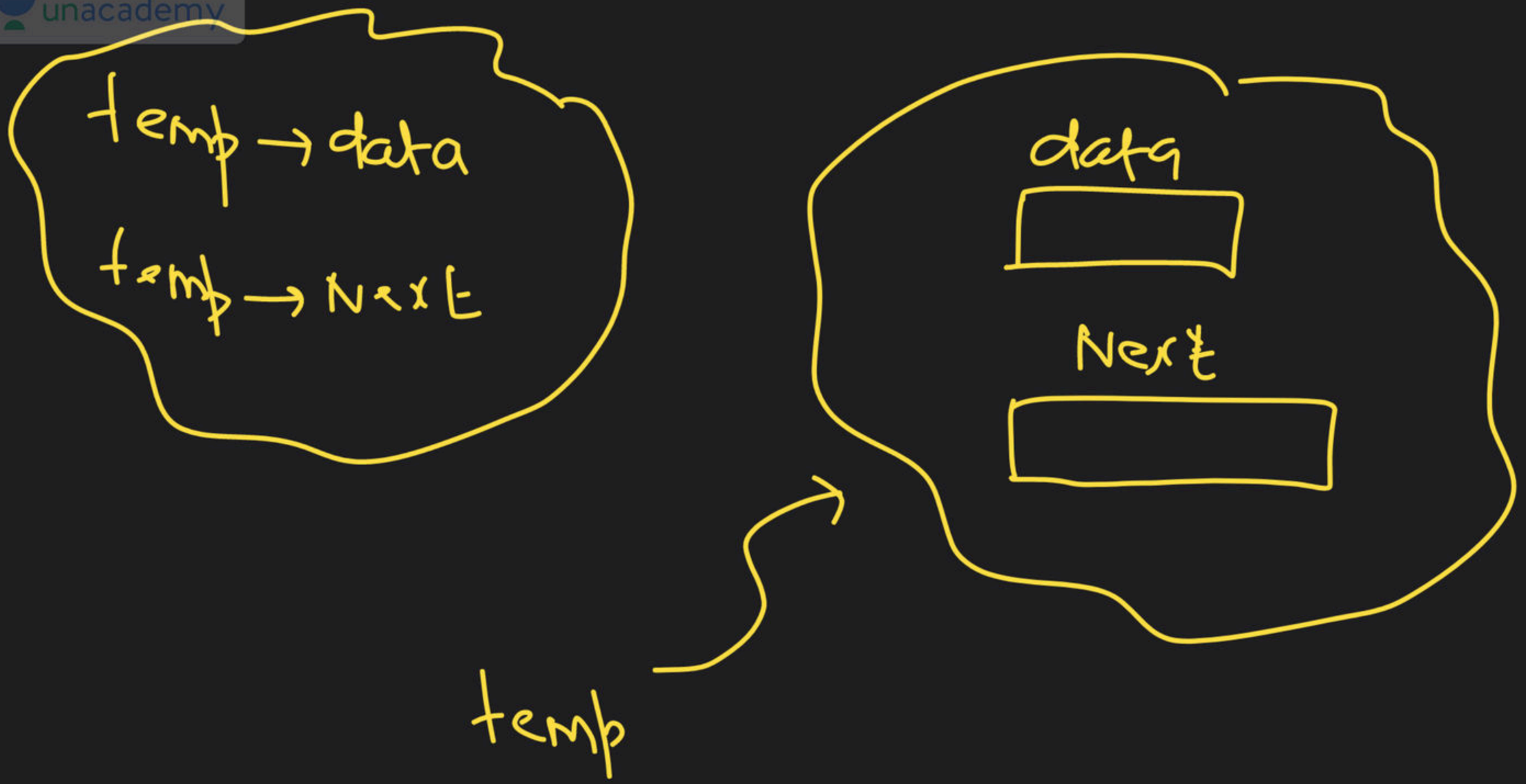
ptr ⇒ Pointer to structure

ptr → member1

ptr → member2

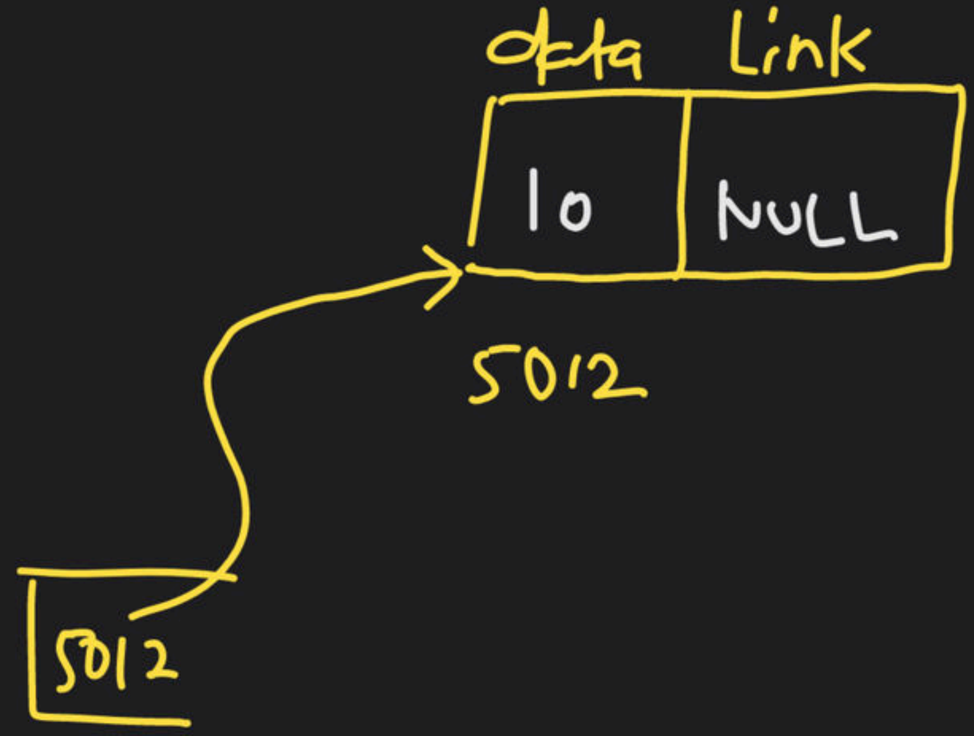
(*ptr).member1

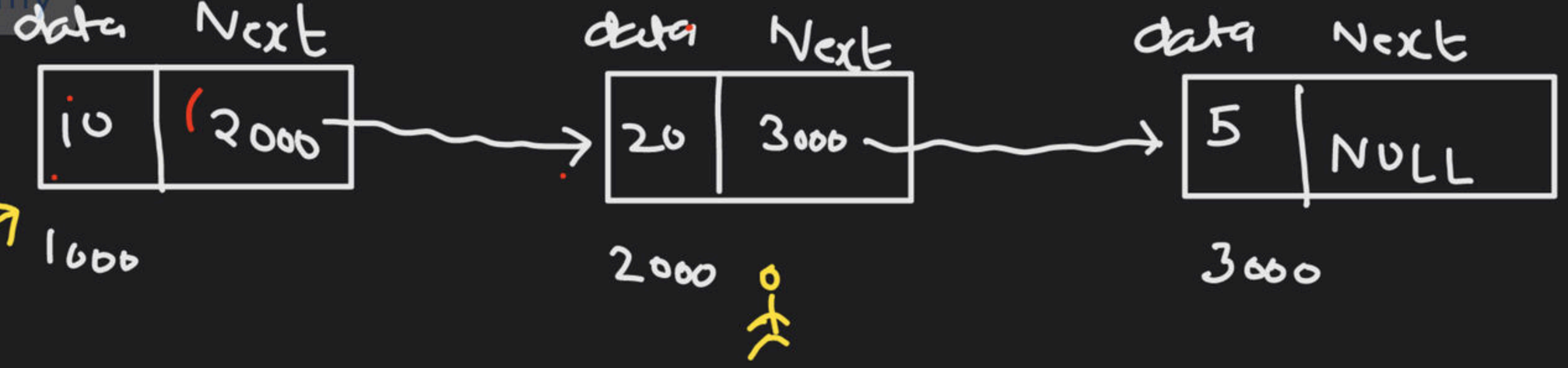
(*ptr).member2



```
struct Node {
   int data;
struct Node *Next;
          }
Void main() {
 struct Node *temp;
   temp = malloc(sizeof(struct Node));
  temp → data = 10;
  temp → Next = NULL;
```

temp is a pointer to structure





Ptr

1600

struct Node *Ptr;

Ptr : pointer to structure ✓

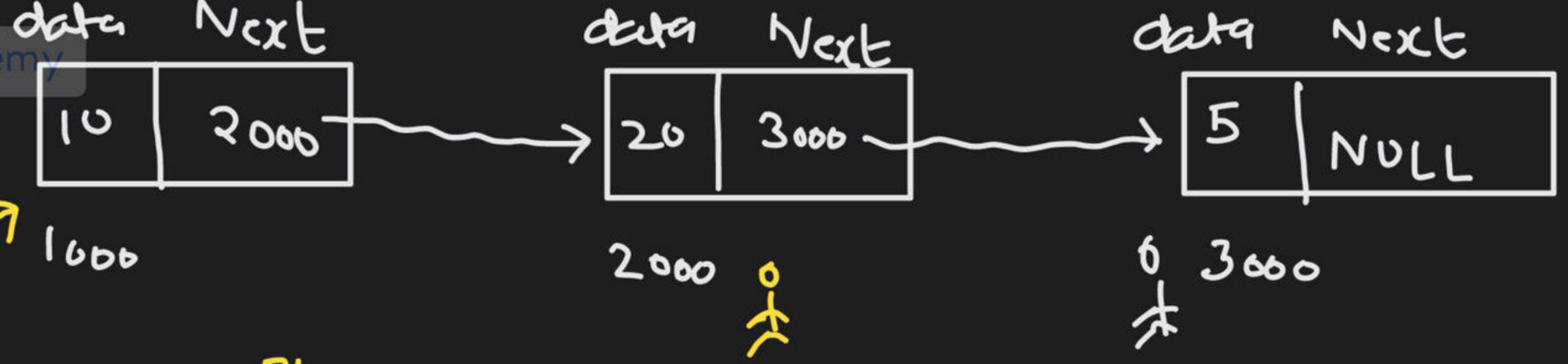
: pointer to 1st Node ✓

: contains address of 1st Node ✓

Ptr → data 10

Ptr → Next

Memory location 2000
Address of Second Node
Pointer to 2nd Node



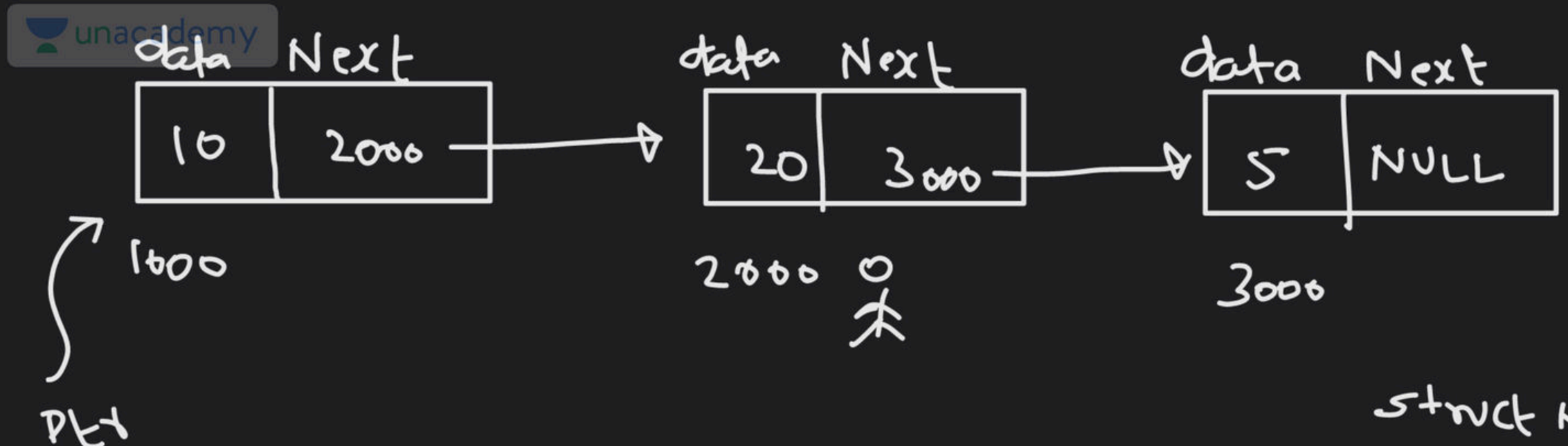
ptr
1600

struct Node *ptr;

ptr → Next ⇒ pointer to 2nd Node

(ptr → Next) → data 20

(ptr → Next) → Next ⇒ Memory location 3000
Address of 3rd Node
→ Pointer to 3rd Node

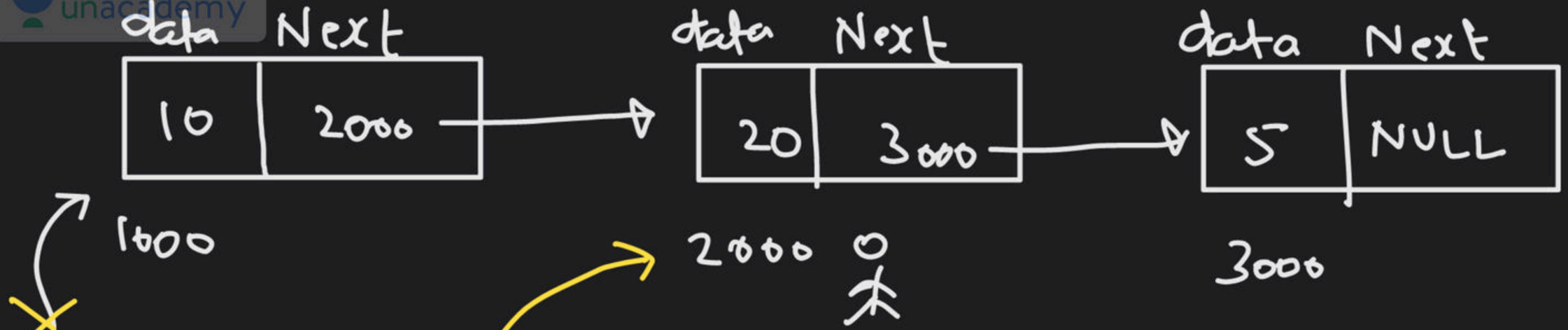


struct Node * Ptr;

Array → index

Next element ⇒ increment index

'index++

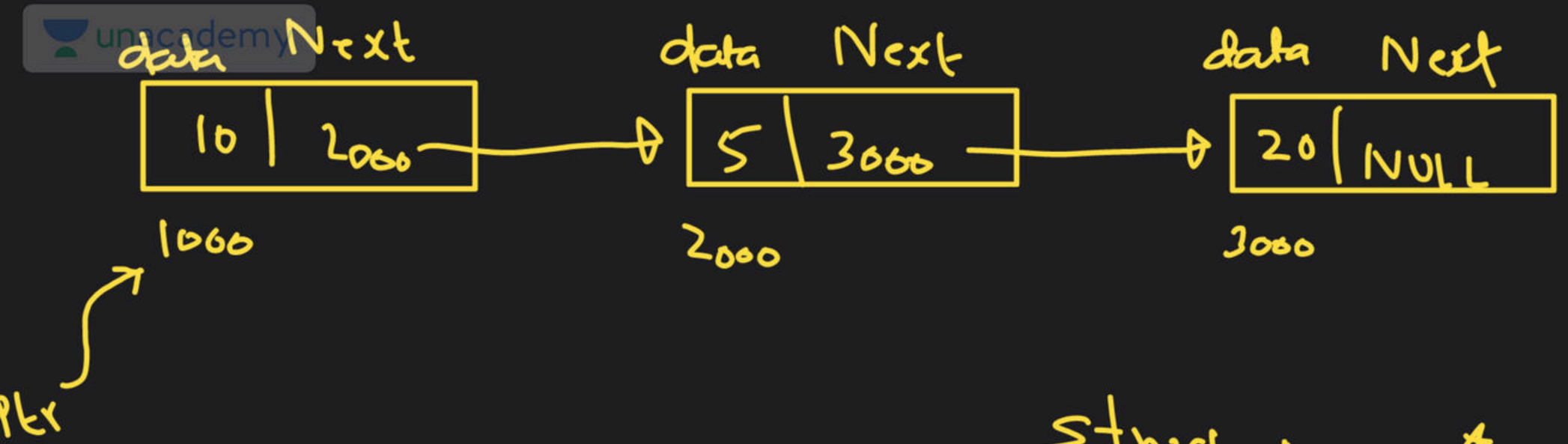


How to move in LL. (next Node)

2000

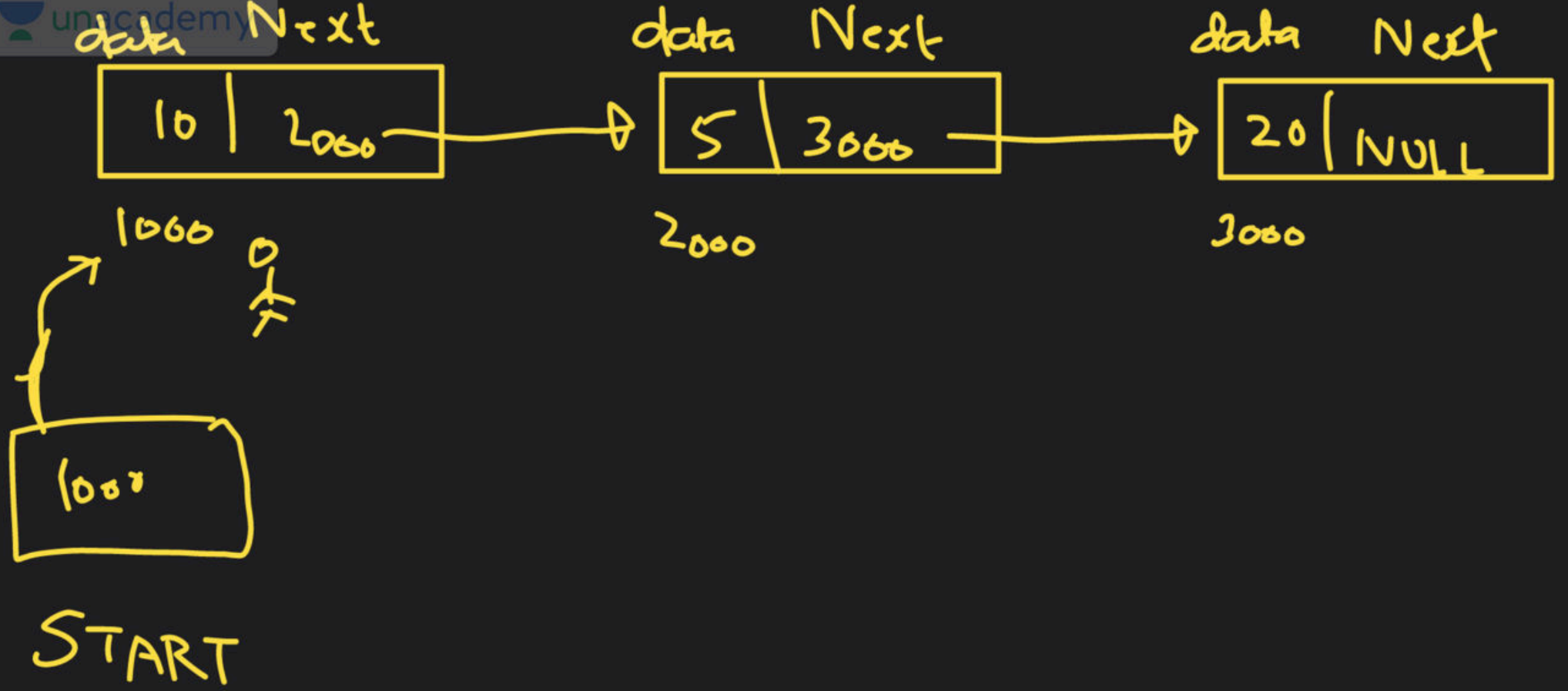
Ptr = Ptr → Next;

Ptr = Ptr → Next;



struct Node * START;

hold the address of first Node


data
Next
10
2000
1000
data
Next
5
3000
2000
data
Next
20
NULL
3000
START

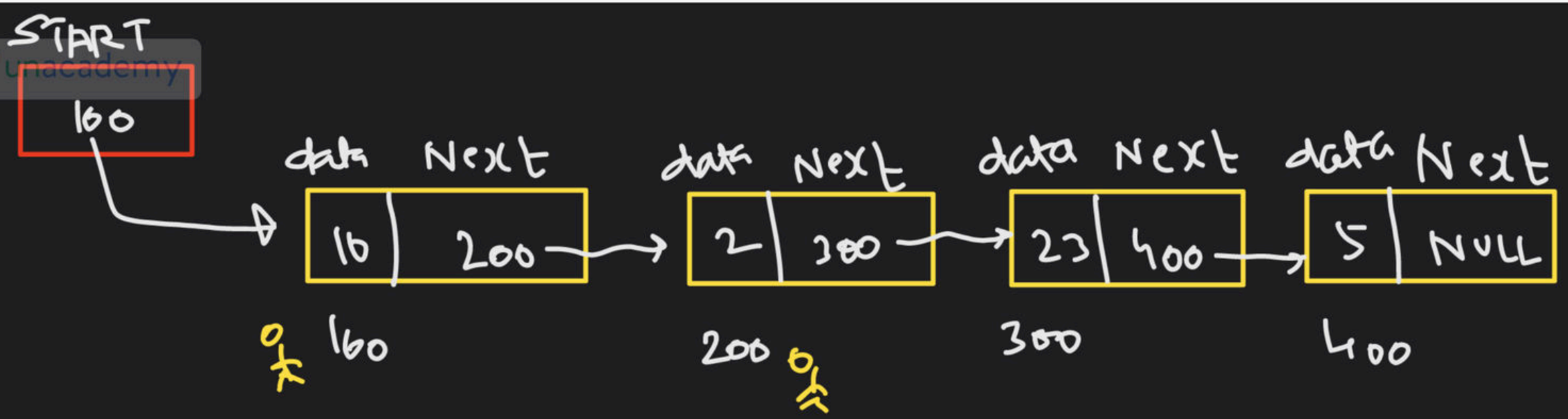
L.L. is Empty

- No Node
- No 1st Node

START → ~~valid~~ address

START

NULL



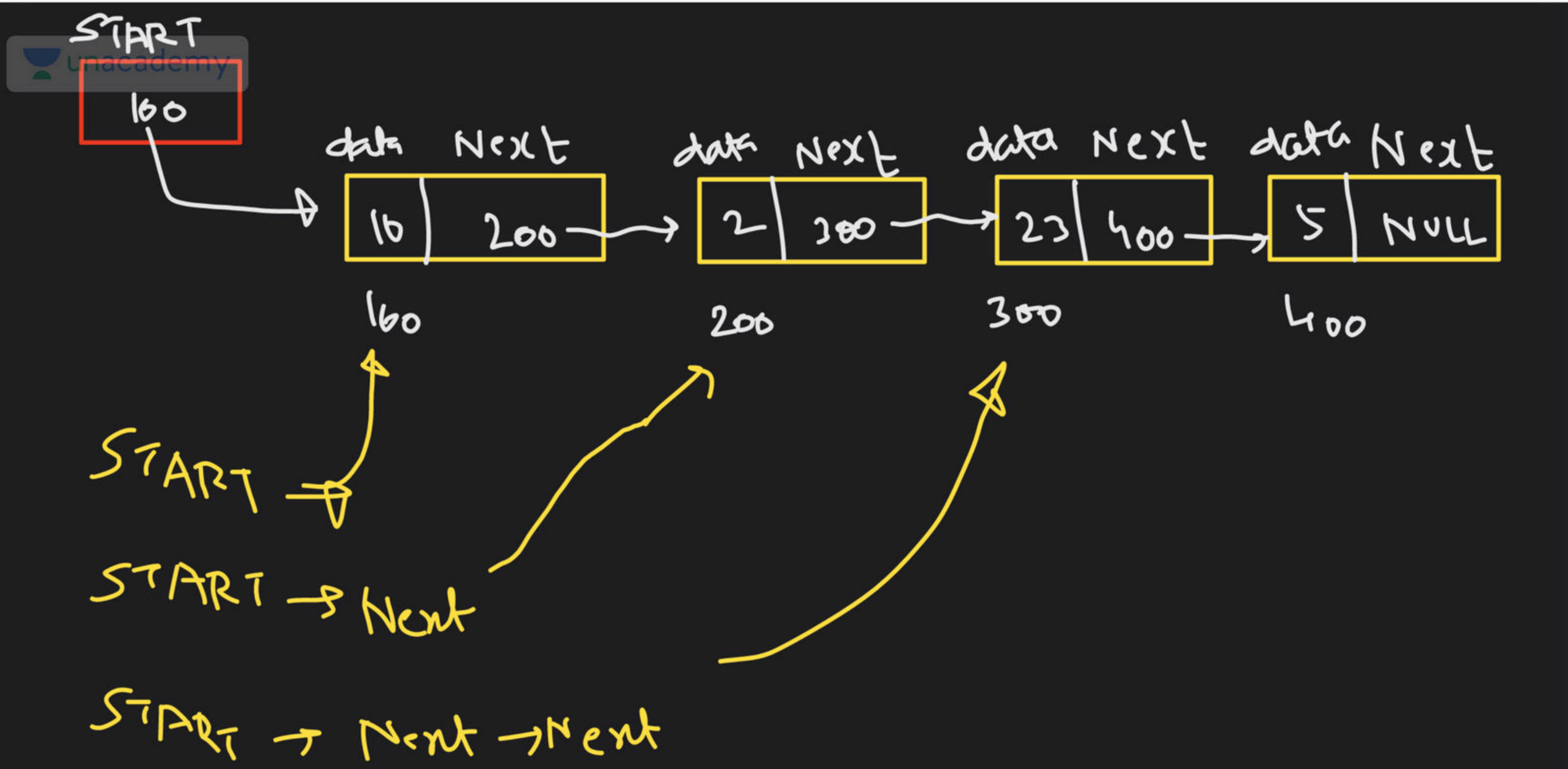
(i) START: address of 1st Node (pointer to 1st Node), pointer to structure

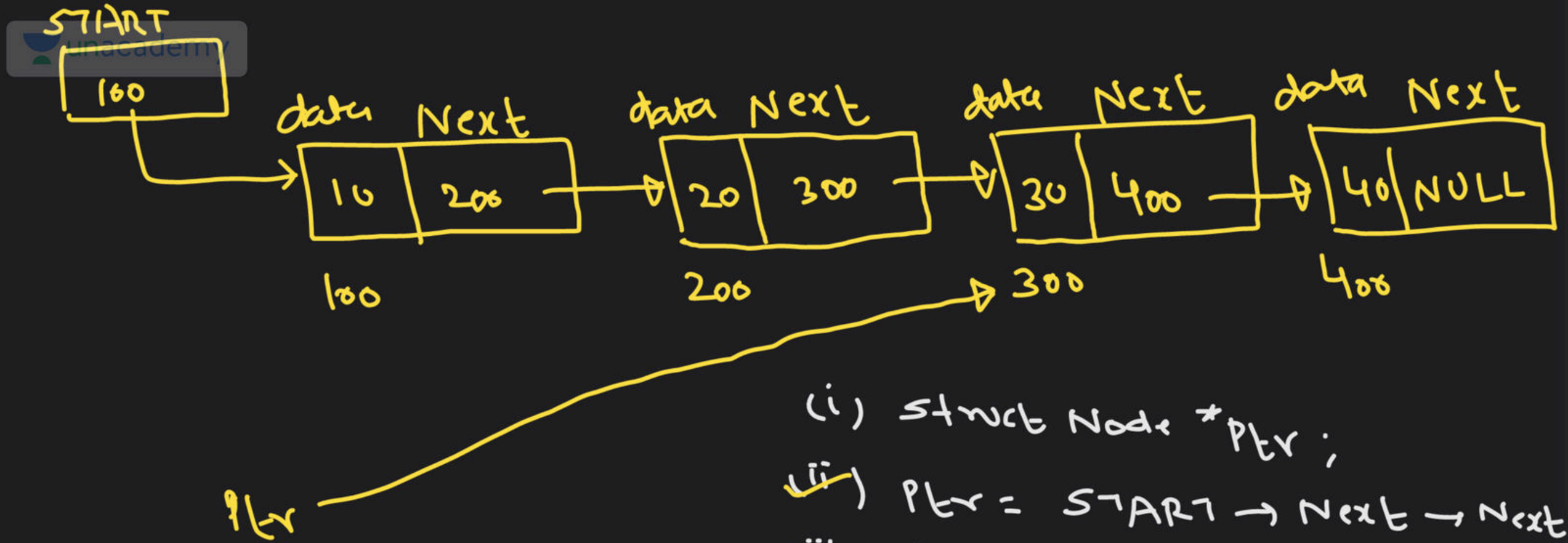
START → data : 10

START → Next : Memory loc. 200 (Address of 2nd Node)
Pointer to 2nd Node (structure)

(START → Next) → data : 2

(START → Next) → Next : Memory loc 300 | Add of 3rd node | Pointer to 3rd Node


START
160
data Next
10 200
data Next
2 300
data Next
23 400
data Next
5 NULL
160
200
300
400
START
START → Next
START → Next → Next

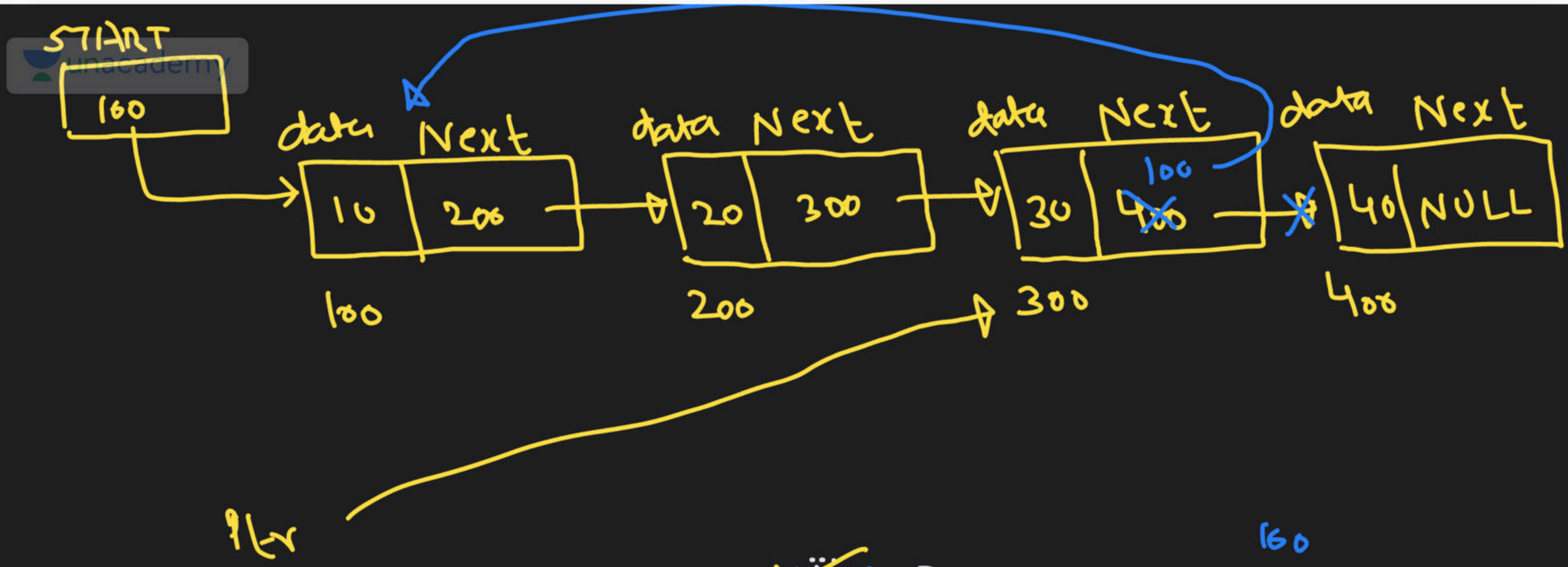


(i) struct Node *Ptr;

(ii) Ptr = START → Next → Next;

(iii) Ptr → Next = START;

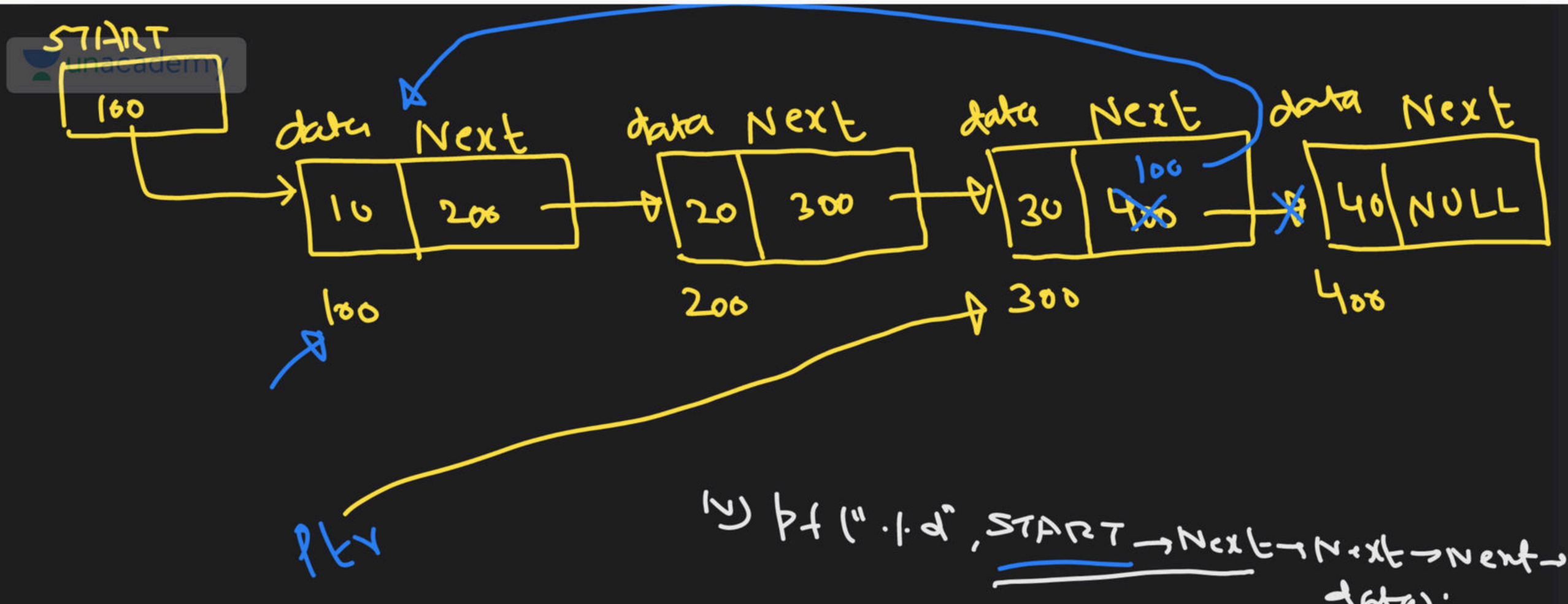
(iv) pf ("%d", START → Next → Next → Next → data);



160

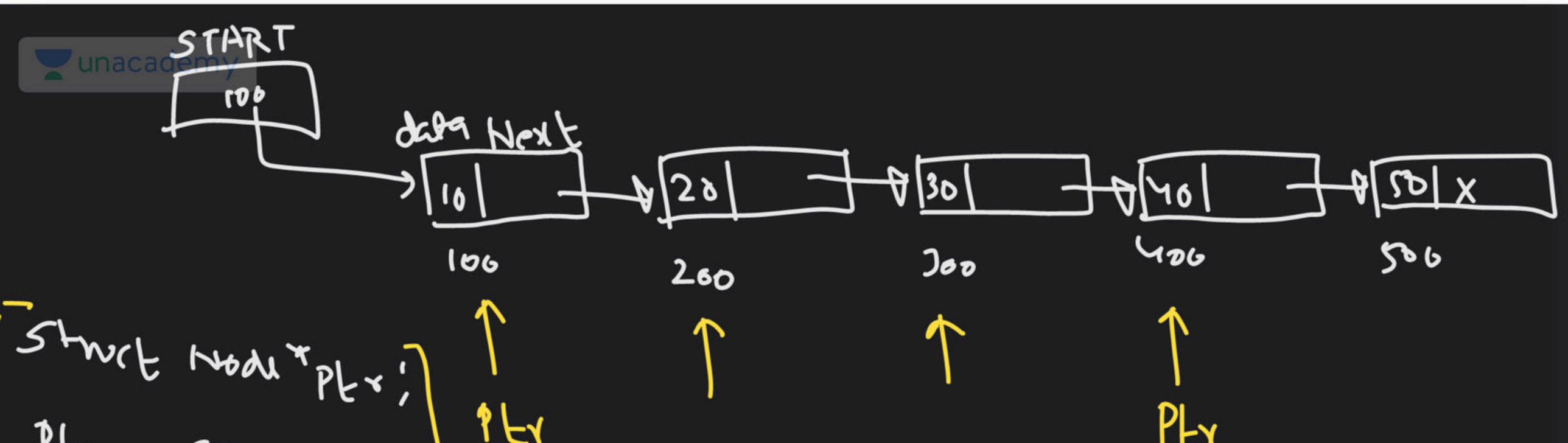
~~iii~~ Ptr → Next = START;

iv) pf ("%d", START → Next → Next → Next → data);

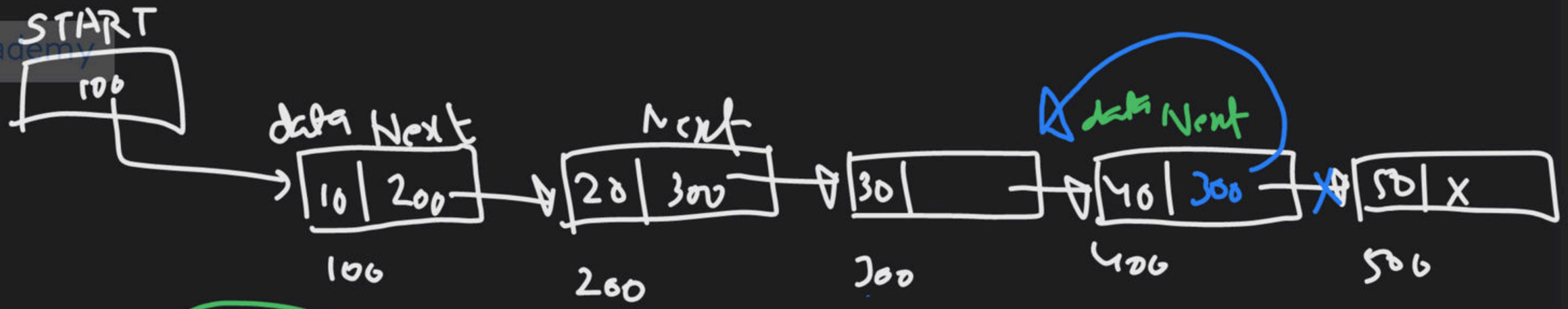


iv) `pf("%d", START->Next->Next->Next->data);`

10




```
struct node *Ptr;
Ptr = START;
for(i=1; i<=3; i++)
    Ptr = Ptr → Next;
Ptr → Next = START → Next → Next;
if("%d", START → Next → Next → data);
```



300

Ptr → Next = START → Next → Next;

Ptr

printf("%d", START → Next → Next → data);

Ptr → Next

unacademy

LL ⇒ 4 node

START ⇒

START → Next

START → Next → Next

START → Next

START → data

START → Next → data

✓ START → Next → Next → data;

unacademy

THANK YOU!

Here's to a cracking journey ahead!