DSA through C++

# Singly linked list

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# Agenda

1. what is a list?
2. what is a node
3. Singly linked list
4. SLL ADT
5. Array vs Dynamic Array vs SLL

# What is a list?

List is a linear collection of data items also known as List Item

## Example 1

Marks of tests / List of marks

20 15 21 24 18 23 25 ....

list item → int

## Example 2

List of guests

"Singh", "Chaturvedi", "Dubey", "Khan" .....

list item → string or char []

## Example 3

List of Students

Rahul
17
xyz@x.com

Savita
19
xy@x.com

Dilip
18
x@x.com

.....

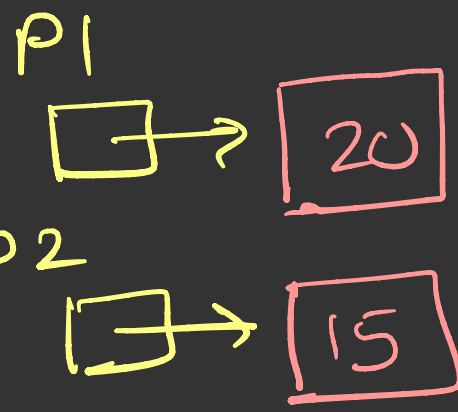
List Item → class or structure

# What is a node?

## Example 1

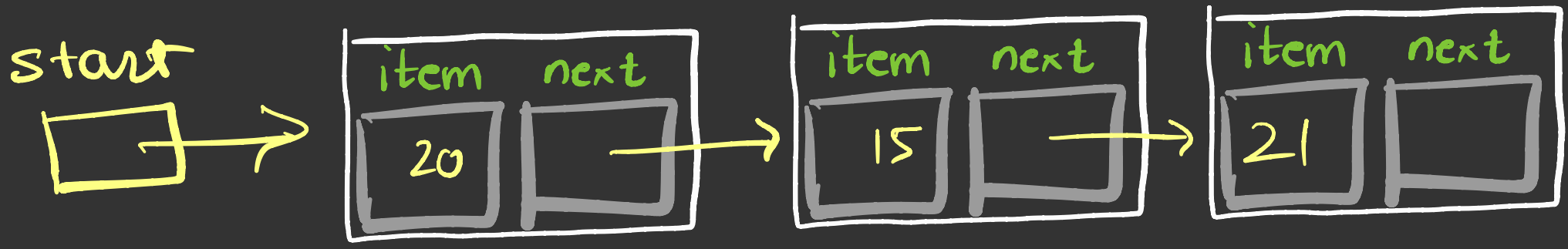
Marks of tests / List of marks

20 15 21 24 18 23 25 ....




int *p1, *p2, *p3, ..

```
struct node
{
    int item;
    *next;
};
```

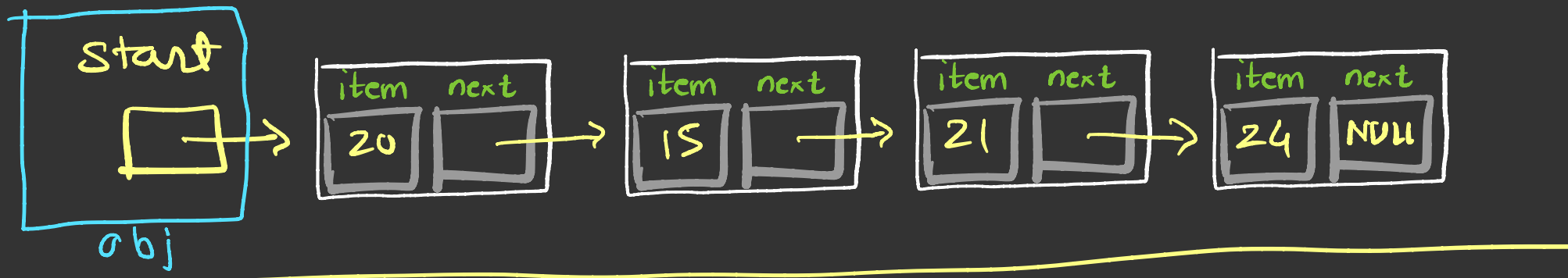


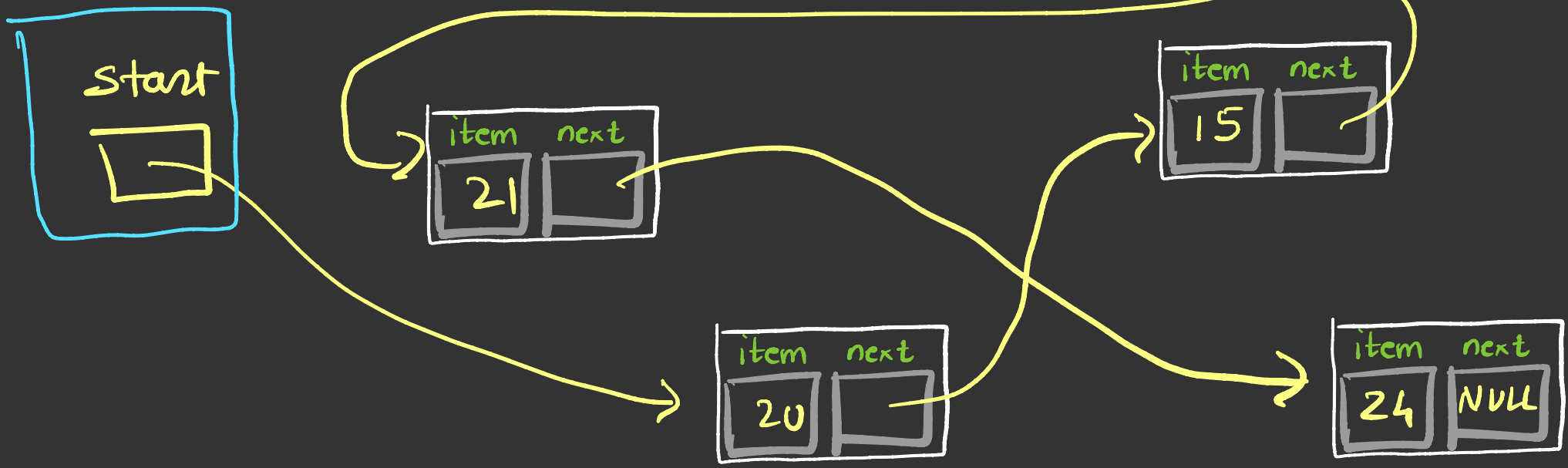
# What is a node?

## Example-1

Marks of tests / List of marks

20 15 21 24 18 23 25 ....



# Singly Linked List

Insertion

- insertAtStart()
- insertAtLast()
- insertAfter()

Deletion

- deleteFirst()
- deleteLast()
- deleteNode()

Traversing

# Array vs Dynamic Array vs SLL

Fast

Fixed size

Fast

flexible memory

not memory efficient

memory efficient

Slow