Subject _____ موضوع الدرس

Date / / التاريخ / /

Data Structure

→ is a method of organizing and storing data

Types

1) Linear Data Structure
   - 1.1) Array
   - 1.2) Linked list
   - 1.3) Stack
   - 1.4) Queue

2) Non-Linear Data Structure
   - 2.1) Trees
   - 2.2) Graphs

* other classifications
  - static vs Dynamic
  - primitive vs Non-primitive

Subject موضوع الدرس

Date / / التاريخ / /

Let's talk about : Linear Data Structure

1) Array

fixed-size / fast access by index

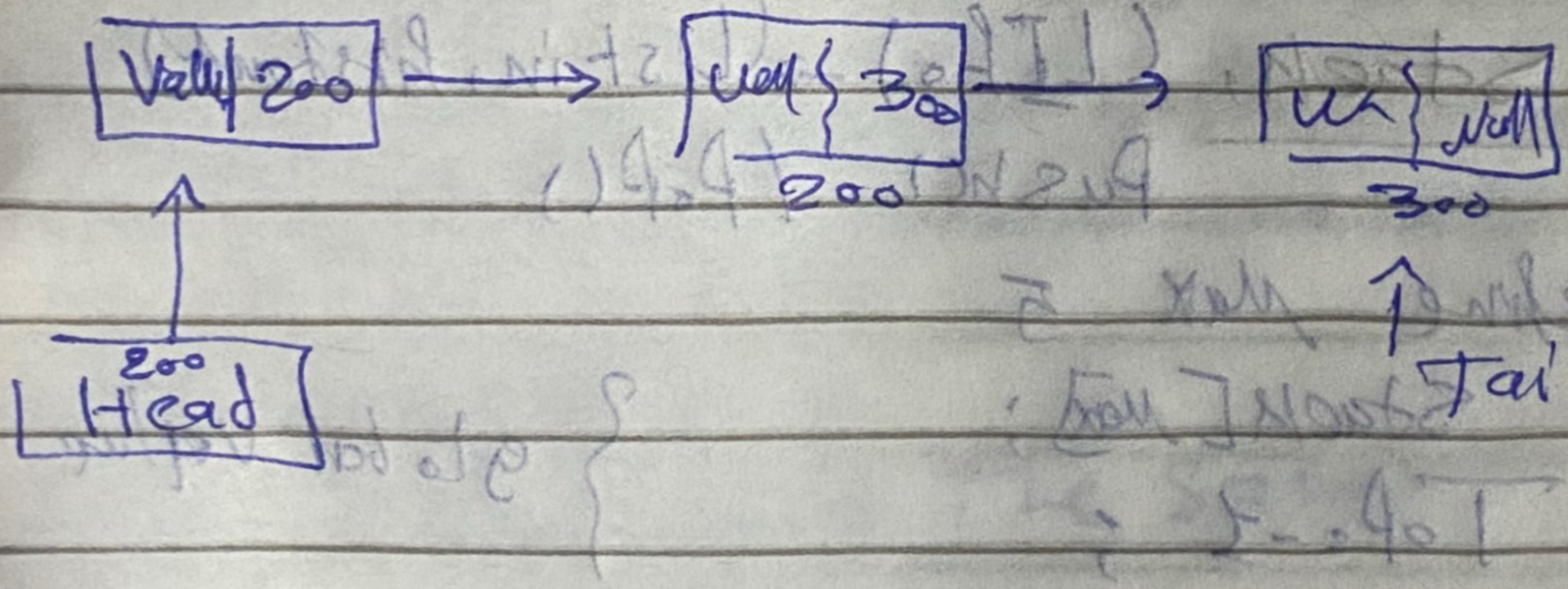
Index, 0 1 2 3

A[] = { 1, 2, 3, 4 }

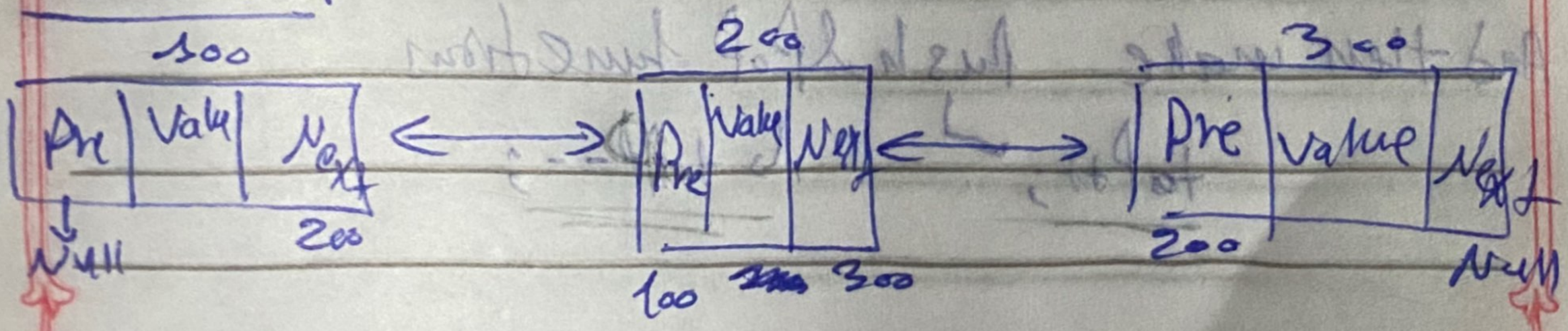
2) Linked list, (Single, Double, Circular)

Dynamic size / Pointer to next

Single,



Double,

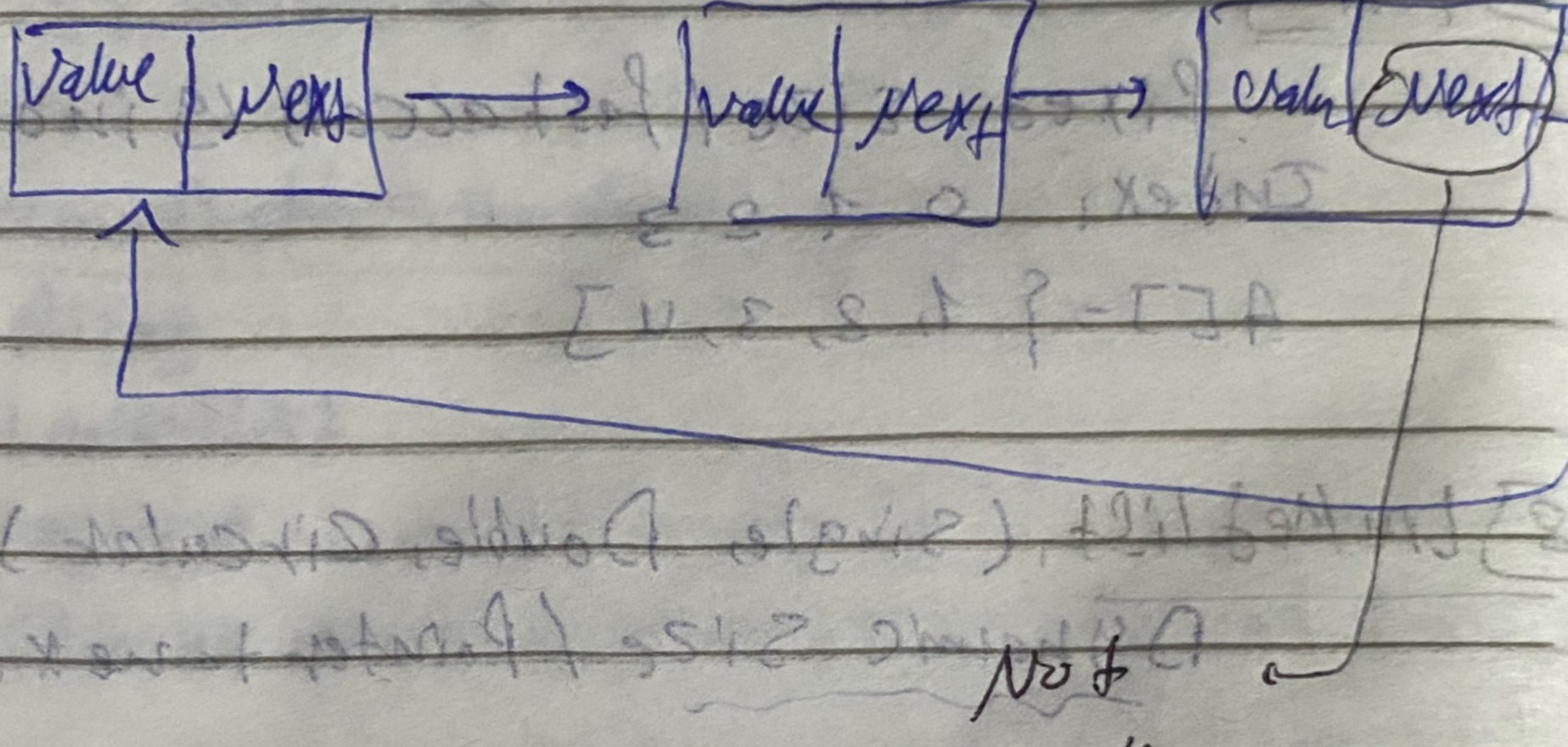


أندلسية

Subject _____ موضوع الدرس

Date / / / / التاريخ

Circular: Single ↔ Double



3] Stack, (LIFO) → (list in, list out)
Push() / Pop()

```
# define MAX 5
int Stack[MAX];
int Top = -1;
```
} global value

And then make Push & Pop functions

top++; ↵ ↳ top--;

Subject _____ موضوع الدرس

Date / / / / التاريخ

Queue (FI FO)

enqueue() / dequeue()

front → A B C ← Rear

we can implement Queue & Stack with LinkedList

And let's talk about the difference between

Stack	Queue
Access pattern is in To Pop stack only	Access pattern is in front and rear
Can be implement by Array or Linked list	→ The same