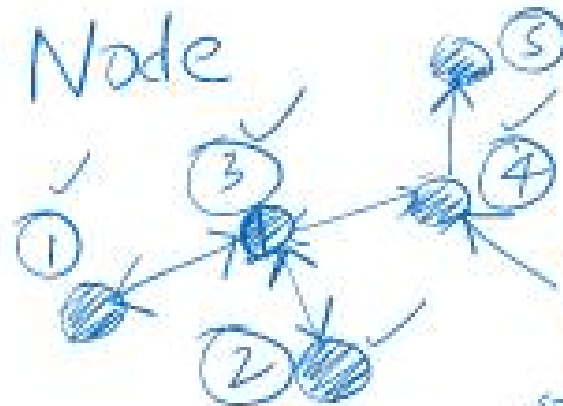


# Node



LinkedList  
Trees  
Graphs  
etc

Node

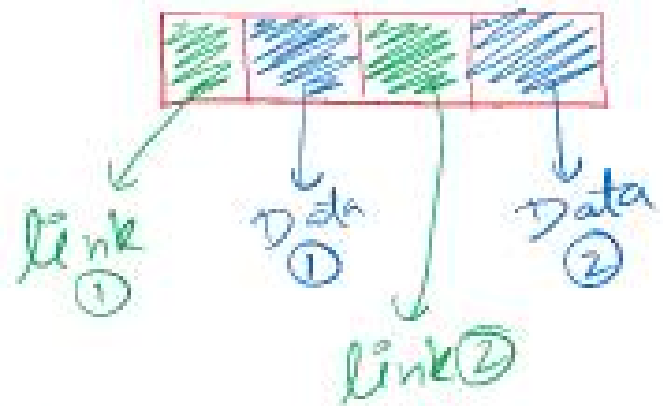
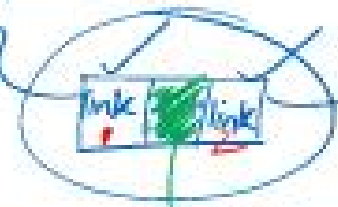
1st node

2nd node

Single node

Data

link → stores  
reference of  
another node



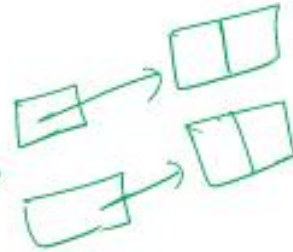
I → X

self → this

class node

{ constructor/init(data, link=None)

{ self.data = data  
self.link = link

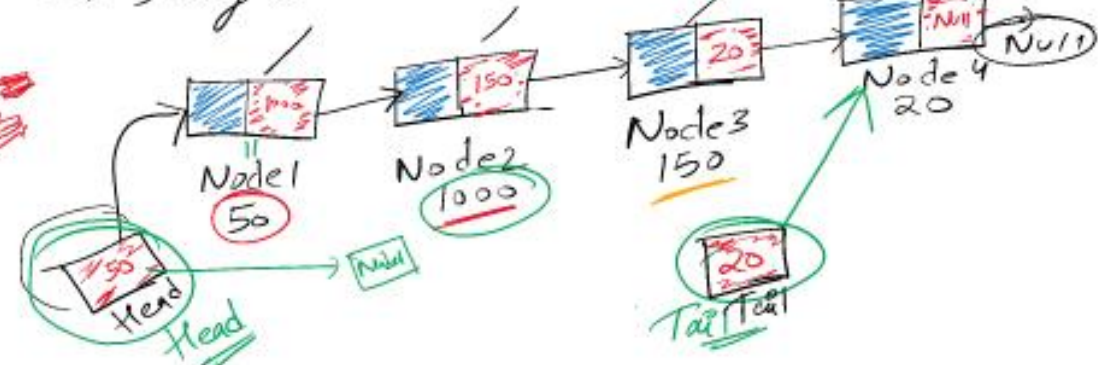


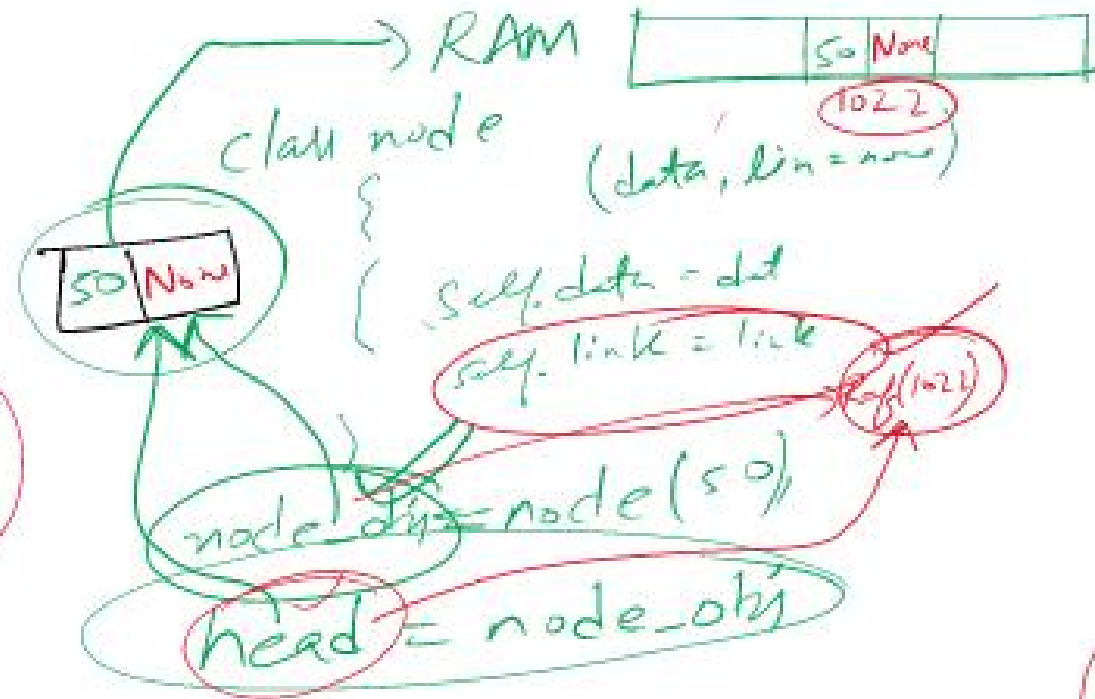
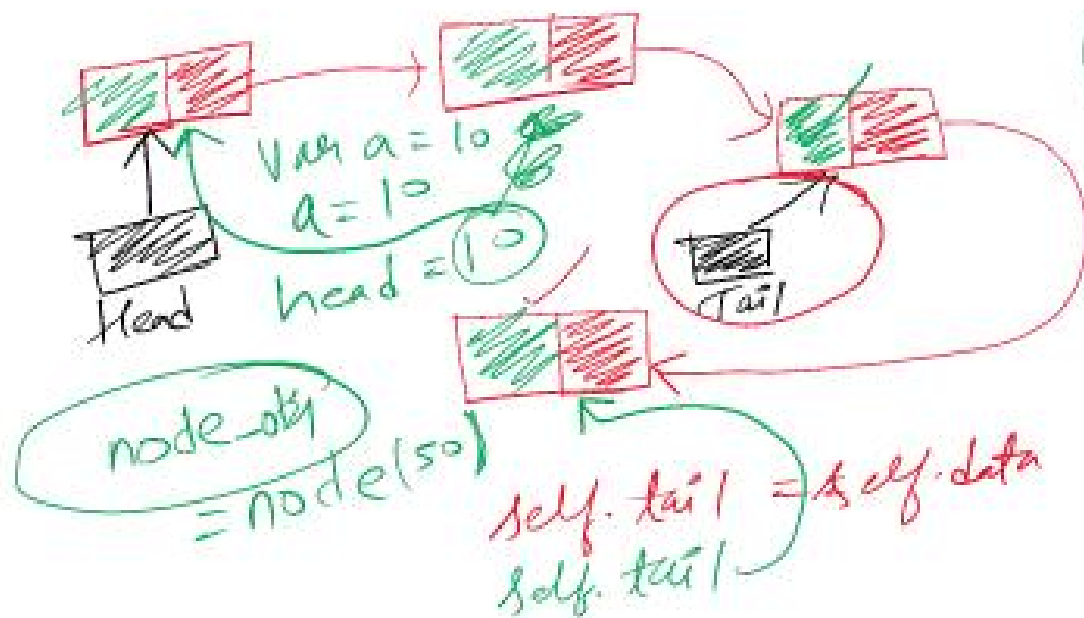
# Linked List ADT

- Singly linked list
- Doubly linked list

Link  
Data

obj (class\_name())  
id(obj)



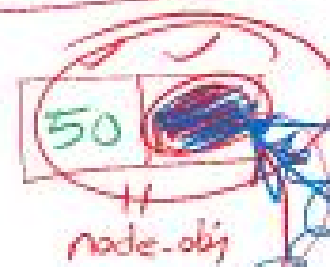


# # Linked list

Consider Node is passed ✓

✓ head = none/Null  
✓ tail = none/Null

## # First Node



if list.is empty()

head = node\_obj  
tail = node\_obj



## # Second Node in the End

①



②

else

last\_node = self.tail

last\_node.link = node\_obj2

self.tail = node\_obj2

## # Third Node

①



node\_obj3

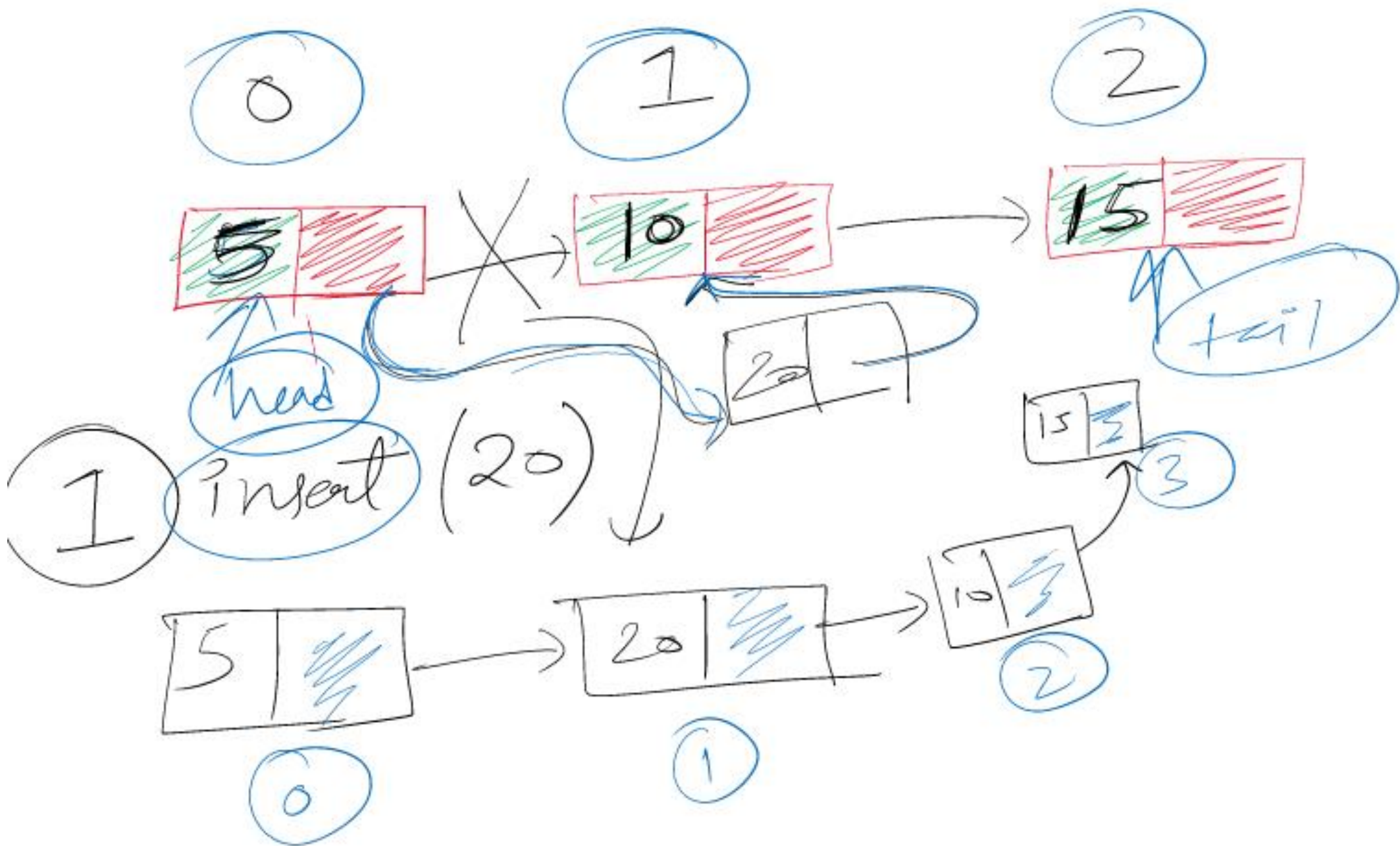
②

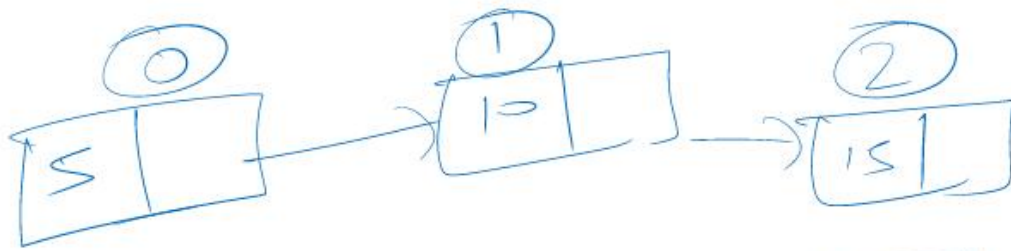
empty X

last\_node = tail

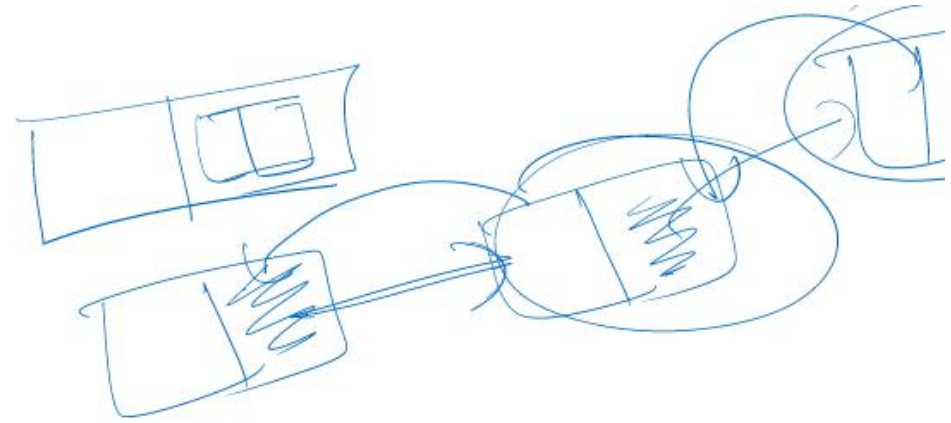
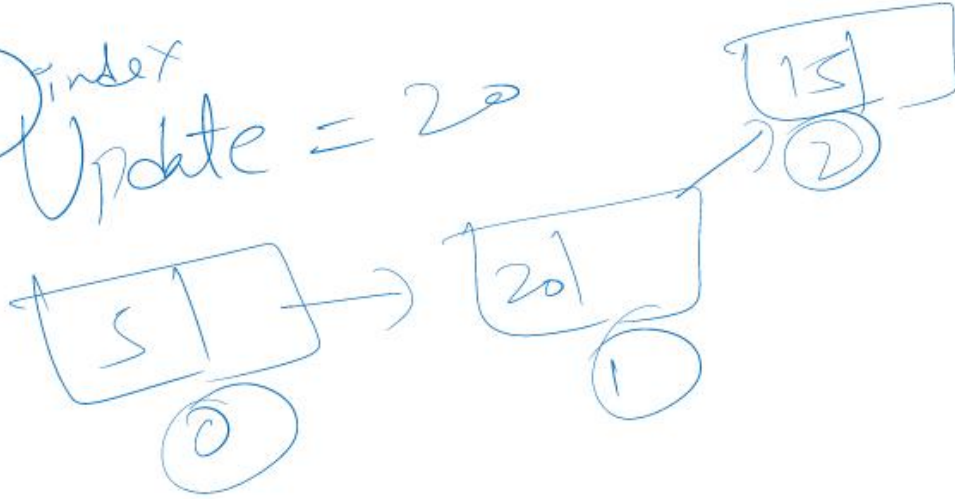
last\_node = node\_obj3

self.tail = node\_obj3





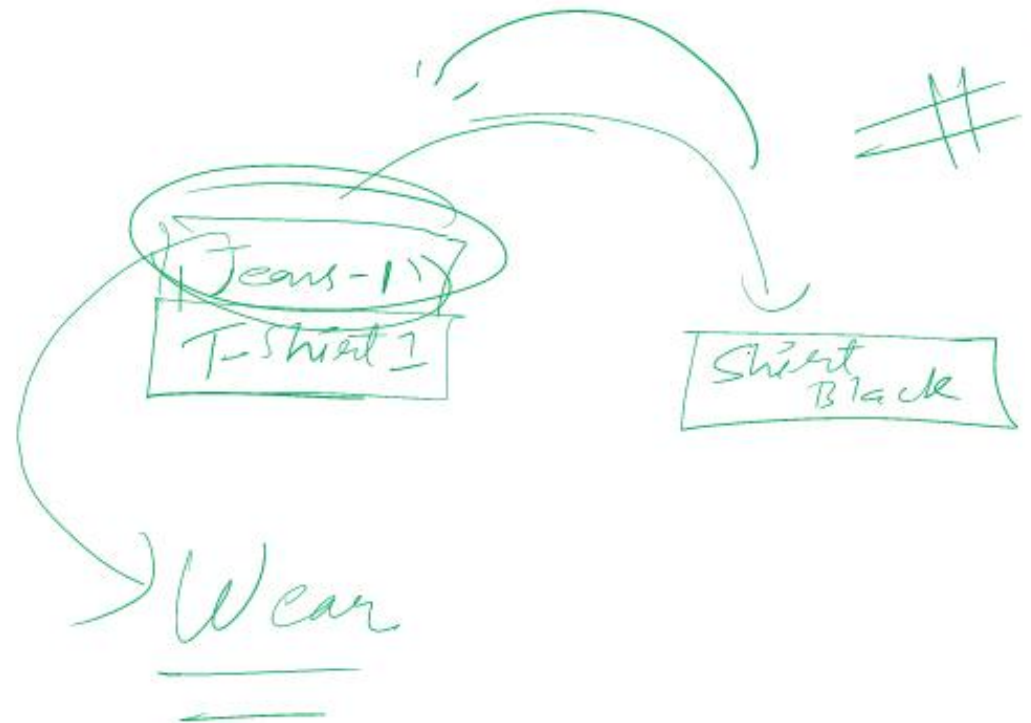
Index  
Update = 2





~~Stack ADT~~ Linear

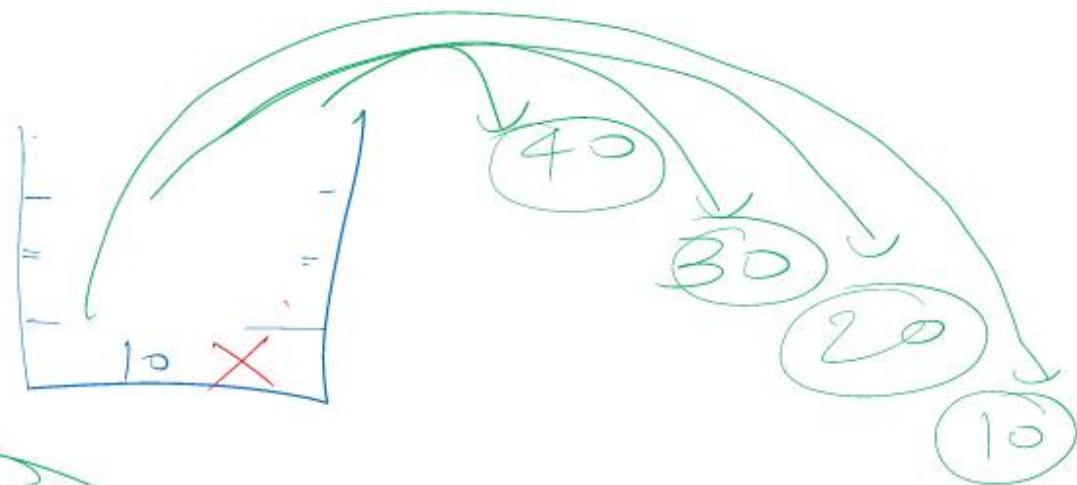
Diagram illustrating a stack structure. The stack contains elements 5, 15, and 20. The top element, 20, is circled in green. An arrow points to the top element. The text "open end" is written to the right of the stack. The word "Append" is circled in red.



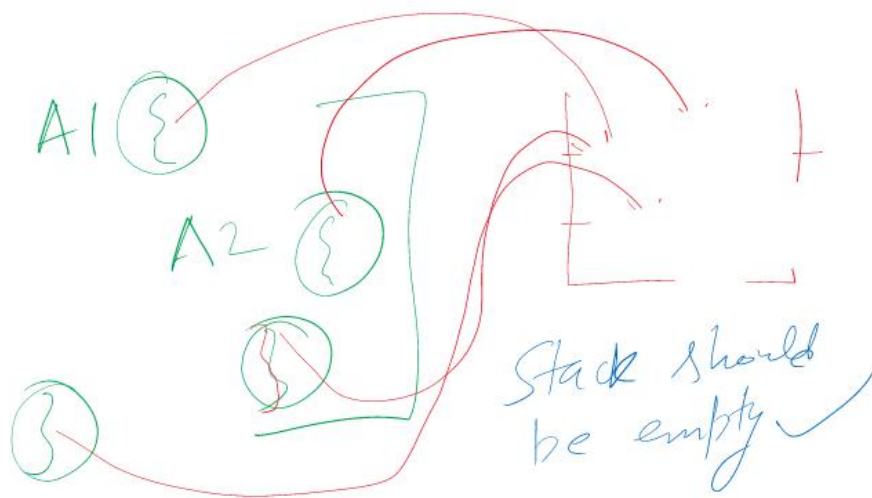
= Marriage



Last IN First Out







$list = []$   
 $list.append(50)$   
 $list.append(30)$   
 $list.append(7)$   
 $list.pop()$

|    |   |
|----|---|
| 7  | ← |
| 30 |   |
| 5  |   |

$push(5) ✓$   
 $push(30) ✓$   
 $push(7) ✓$   
 $top() = 7$