

CSE 30

5-4-21

1

- quiz : tonight
- pay : ext. 2 days
- pay/out : error is fixed

$a = \text{some int}$

$b = \text{" "}$

$\text{Decimal}(a/b)$ wrong!
↑
float division

$\text{Decimal}(a) / \text{Decimal}(b)$ right!
↑
Decimal division

Ex. List ADT

states: finite sequences

can do insertions, deletions,
accesses and overwrite at
any position.

operations

append(x) : add x to back

clear() : erase all items

copy() : return a copy

insert(i, x) : insert x at pos. i

pop(i = -1) : delete item at
pos. i

also

len(), str(), repr(), eq() ==
iter()

more: ---- Pass ----

Linked-list data structure

3

- built on a simple class called Node

```
def Node(object):
```

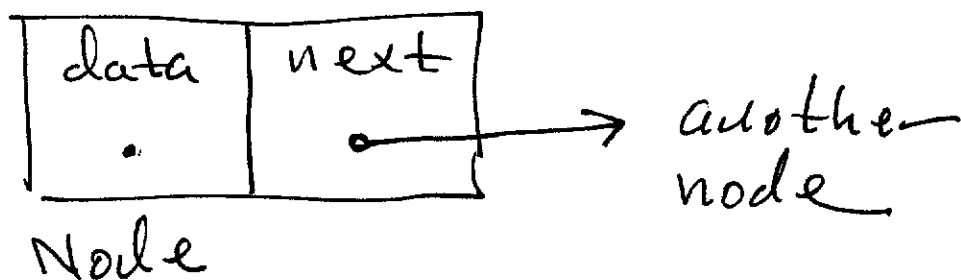
```
    def __init__(self, x):
```

```
        self.data = x
```

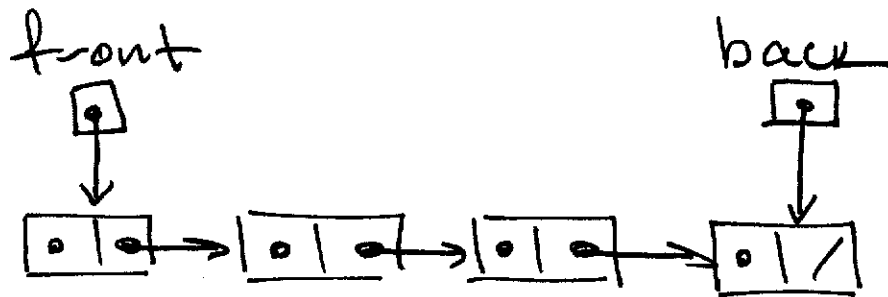
```
        self.next = None
```

```
    #end
```

```
#end
```



• linked-list picture:



- interactive mode -

$front = Node(3)$

Pic: $front \rightarrow [3 | /]$

$front.next = Node(5)$

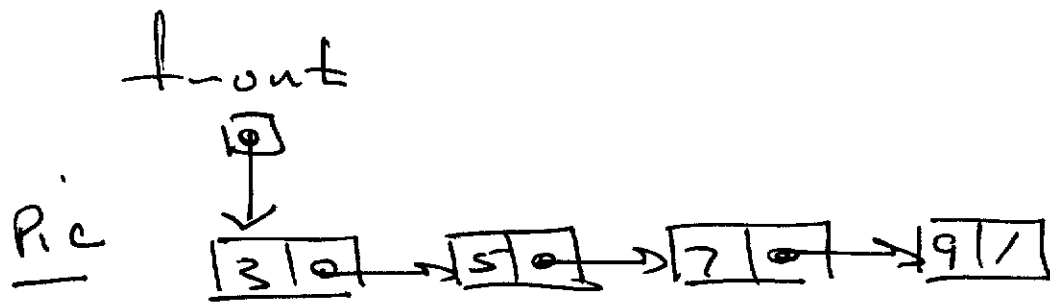
Pic: $front \rightarrow [3 | /] \rightarrow [5 | /]$

$front.next.next = Node(7)$

$front$

Pic: $front \rightarrow [3 | /] \rightarrow [5 | /] \rightarrow [7 | /]$

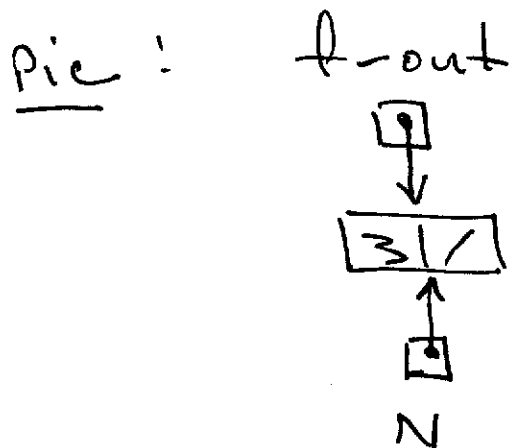
$\text{front.next.next.next} = \text{Node}(9)$



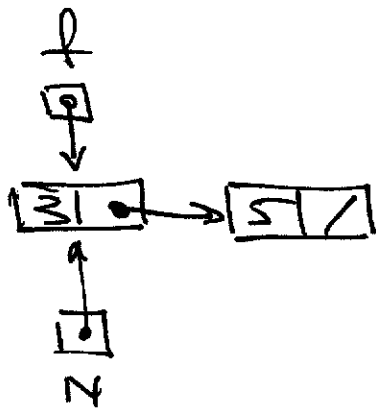
start over!

$\text{front} = \text{Node}(3)$

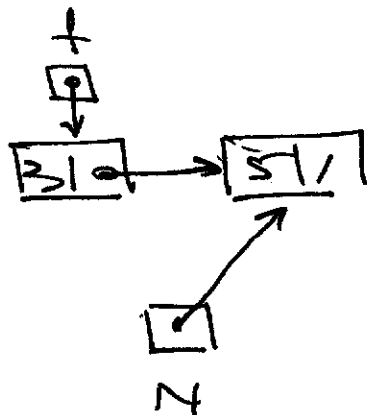
$N = \text{front}$



$N.\text{next} = \text{Node}(5)$



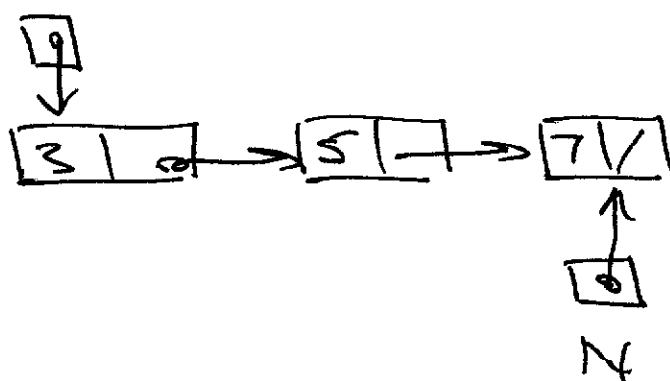
$N = N_{\text{next}}$



$N_{\text{next}} = \text{Node}(7)$

$N = N_{\text{next}}$

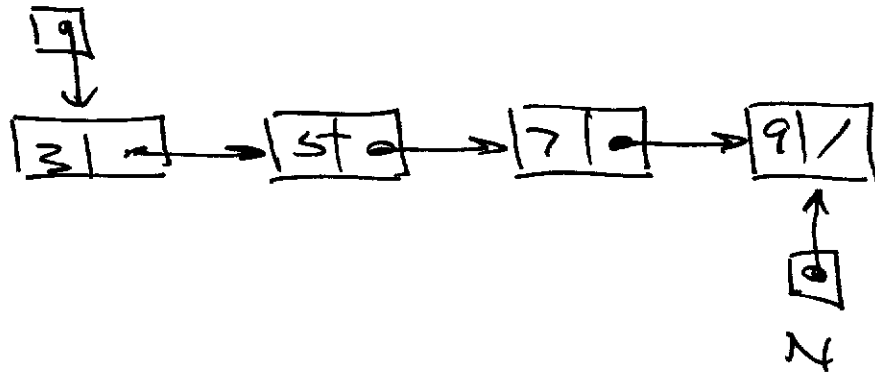
front



$N.next = Node(9)$

$N = N.next$

front

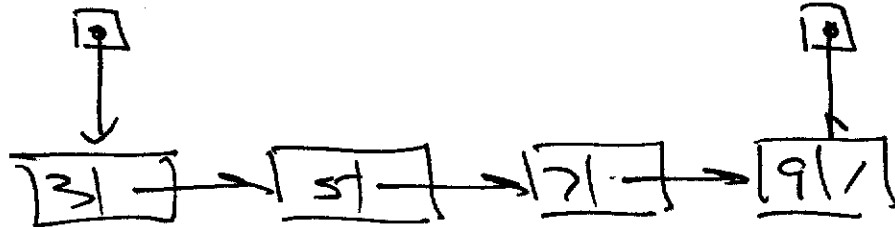


rename 'N' as 'back',

then do over:

front

back



```
def printList(l):
```

```
    N = l
```

```
    while N != None: # while N:
```

```
        Print(N.data)
```

```
        N = N.next
```

```
    #end
```

```
#end
```

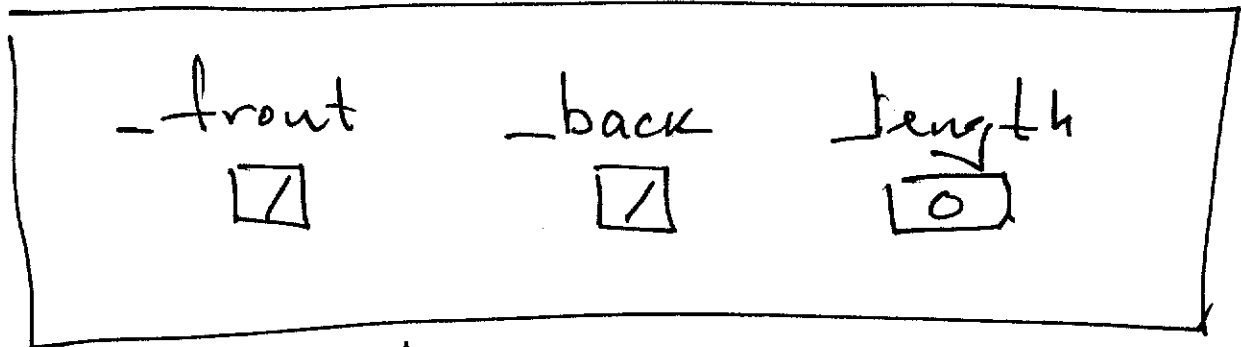
```
def append(x):
```

```
    back.next = Node(x)
```

```
    back = back.next
```

```
#end
```

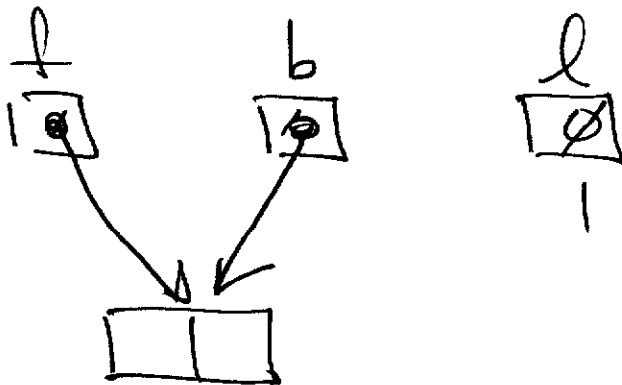

Ex. list.py (class List)



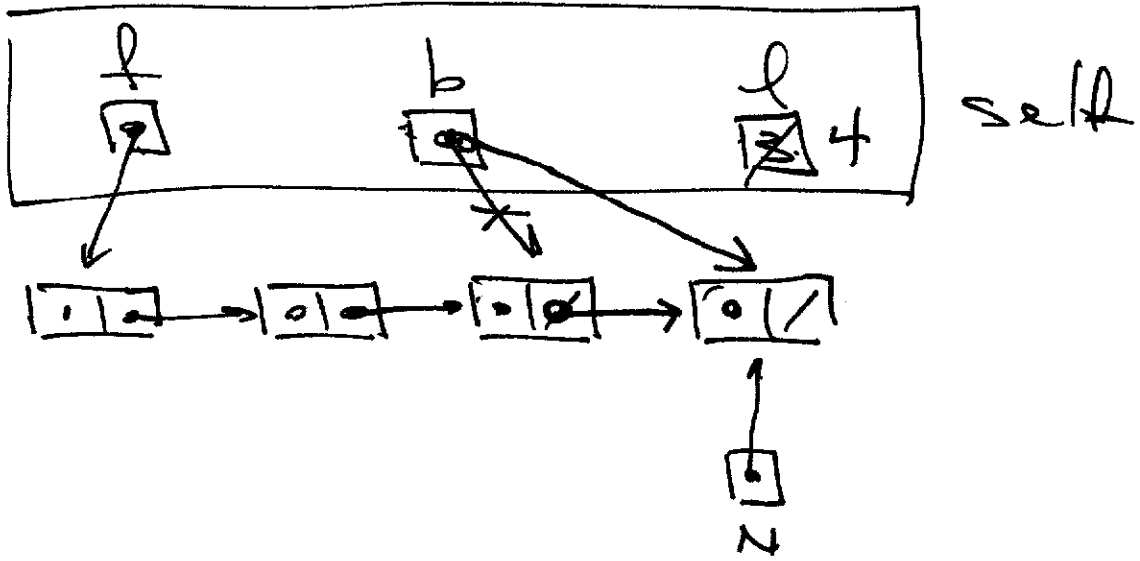
empty list object

append() in class List

sp. case: length = 0



gen case : length ≥ 1



Part:

11

$$\frac{a}{b} = \frac{c}{d} \text{ iff } ad = bc$$

we don't store
non-reduced fractions.

$$\frac{a}{b} \quad \frac{c}{d}$$

if both reduced, then

$$\frac{a}{b} = \frac{c}{d} \text{ iff } a=c \text{ and } b=d$$