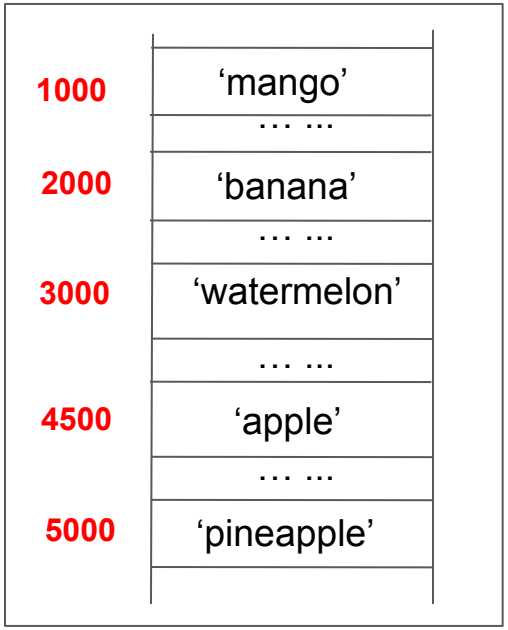
Chapter 3 < 補充講義 >

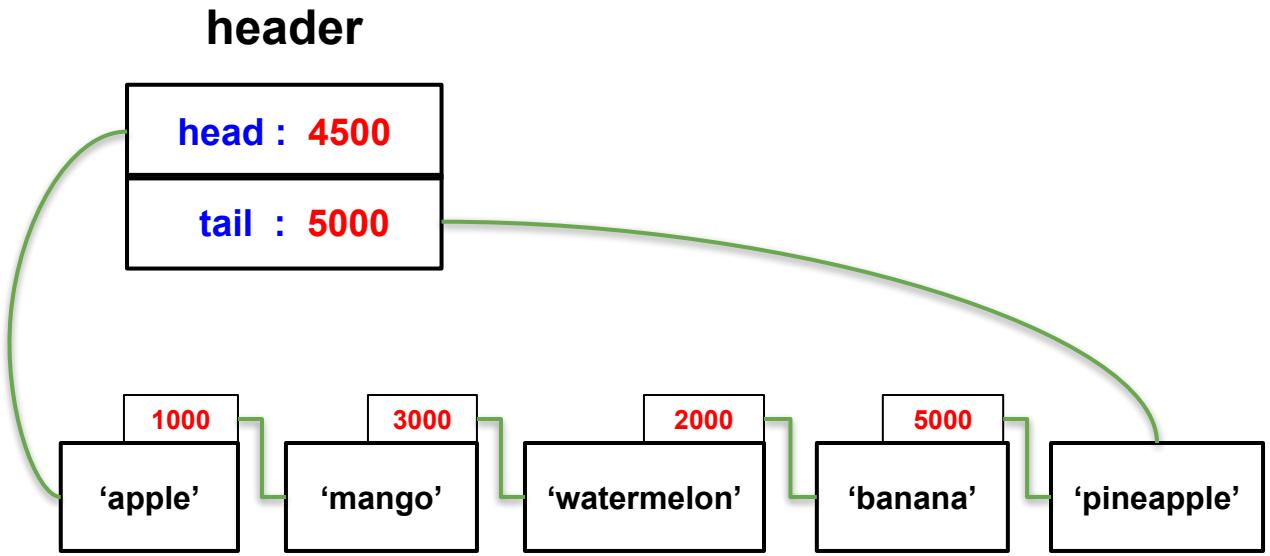
Flow Control & Data Structure

Alex Hu @ NCU 2020/03/19

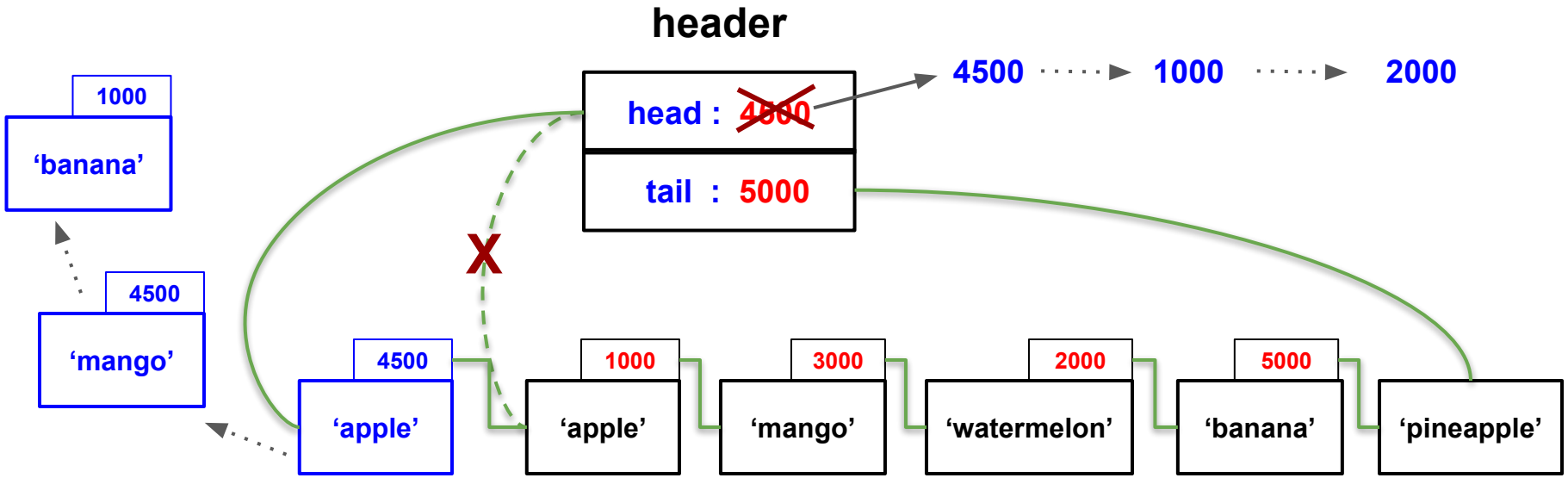
[Example 3.1.3] : **for loop**

fruits = [‘apple’, ‘mango’, ‘watermelon’, ‘banana’, ‘pineapple’]





```
fruits = ['apple', 'mango', 'watermelon', 'banana', 'pineapple']
for f in fruits[:]:
    if len(f) <= 8 and len(f)>=5:  fruits.insert(0, f)
```



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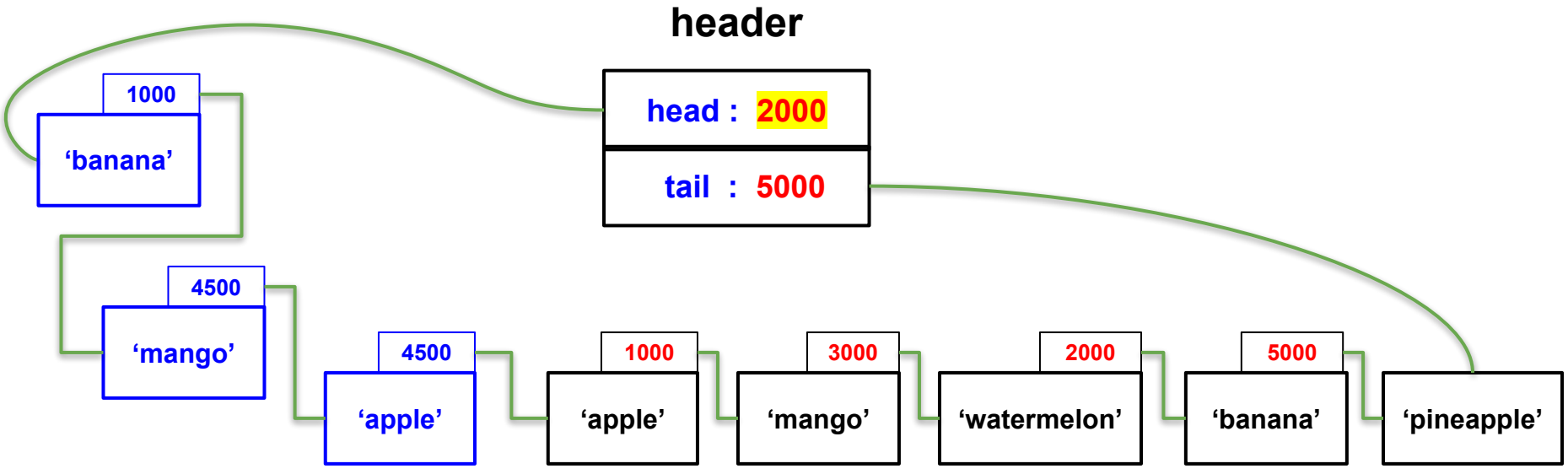
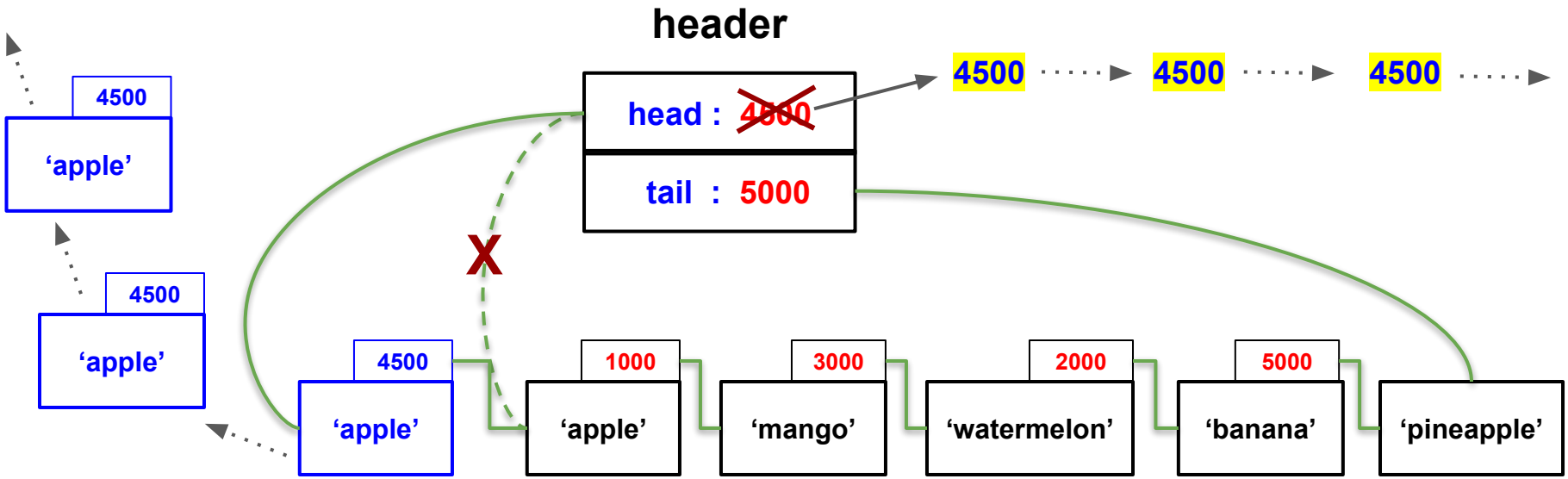
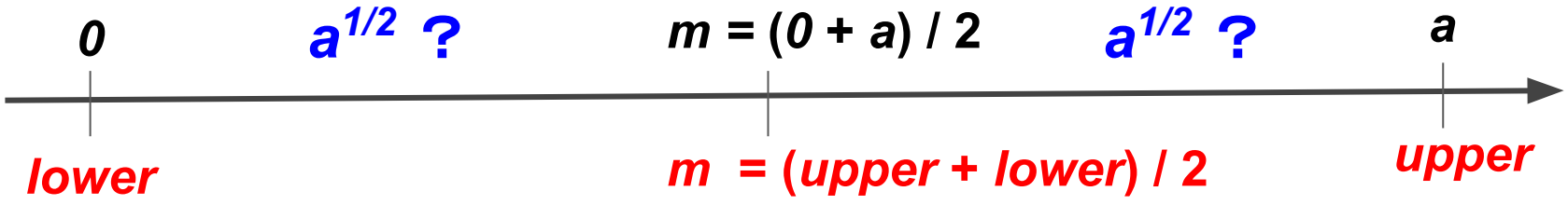


```
fruits = ['apple', 'mango', 'watermelon', 'banana', 'pineapple']
for f in fruits:   #  an infinite loop runs forever and ever...
    if len(f) <= 8 and len(f)>=5:  fruits.insert(0, f)
```



[Homework Assignment 1] : ***Square Root***

Assume $a > 0$ => $a^{1/2} = ?$ (***Binary Search Algorithm***)



$0 < a < 1$

=> $0 < a < a^{1/2} < 1$

$1 < a^{1/2} < a$

=> $1 < a < a^2$

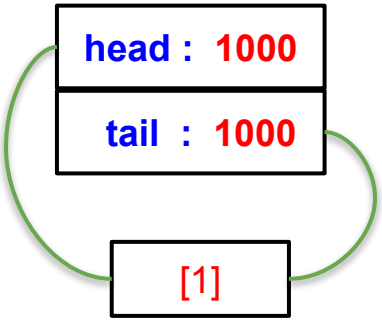
Algorithm

upper, ***lower*** = ***a***, *0*
if ***a*** < 1: ***upper*** = 1
Loop :
{ ***m*** = (***upper*** + ***lower***)/2
if ***a*** < ***m***^{2} : ***upper = m***
else: ***lower = m***
if *abs(**upper - lower**)* < ***err*** : ***result*** }

[Example 3.1 *(repetition)運算]

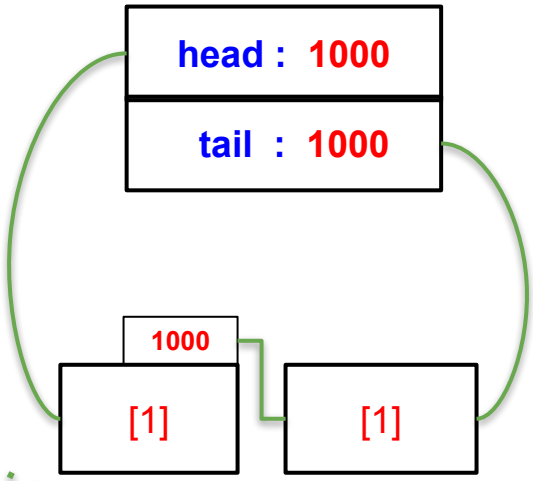

```
list1 = [ [1] ]
```

list1 header



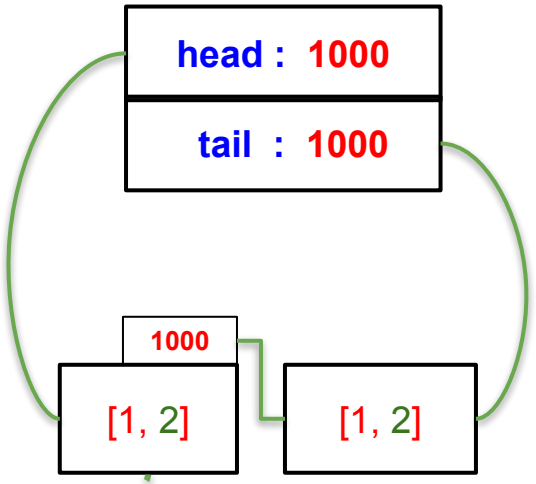

```
list2 = list1 * 2
list2      # [ [1], [1] ]
```

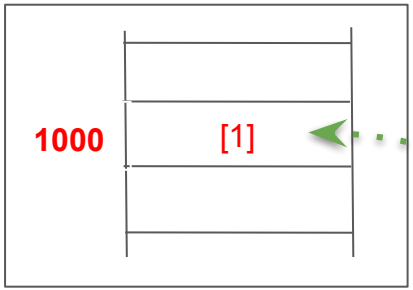
list2 header




```
list2[0].append(2)
list2      # [ [1, 2], [1, 2] ]
```

list2 header





[1, 2]