CS21: INTRODUCTION TO COMPUTER SCIENCE

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Fall 2018

Swarthmore College

Outline Oct 31:

- Quiz review: Handout 7 (stacks)
- Quiz review: using the “in” operator

- List-of-Lists (LOLs)
- TDD graphics example
- Mid-semester feedback

Notes

- **Lab 7** due **Saturday** night (email me when you finish TDD!)
- **Quiz 3 on Friday!** Ninja session tonight 7-10pm (in this room)
- Office Hours **Friday 3-5pm and by appointment**

Notes and Feedback

Notes on TDD

- Main should not be “gutted” and everything put in functions; a reader of your code should be able to understand the high-level idea from main

- On the flip side, each of your functions should be “function worthy”; if a function is one line that is always called as part of another function, merge the two functions

- Parameter types and return type should be included in your comment for each function

```
def helper(<params>):
    '''
    Purpose: ...
    Params: (include type)
    Return: (include type)
    '''
    return <stub>
```

Lab feedback

- Avoid hard-coding!

```
width = 400
win = GraphWin("circles",400,400)
```

NO!

- Several cases of under or over commenting

- Commenting formula:
  - **line break**
  - **comment on it's own line**
  - **code block (2-6 lines)**
  - (very short comments can be inline)
  - (indentation should match the level of the code)

Method vs. Function

- A *method* is called by a specific *instance* using "dot" notation (however *random.choice(..)* is a *function* because *random* is a library not an instance of a class)

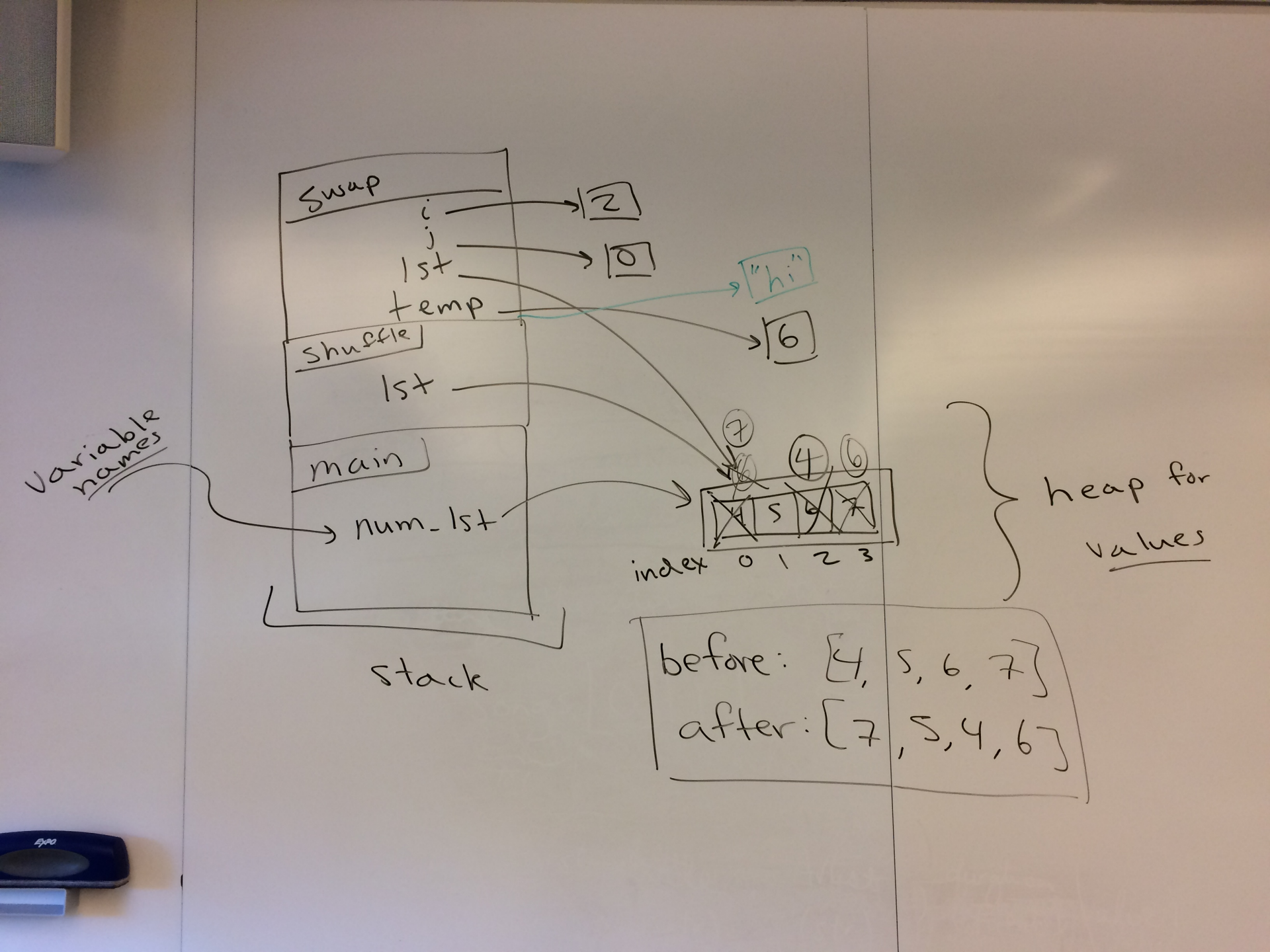
- Both methods and functions can have any number of parameters (including none), and both can return a value:

```
n = get_user_int()
x = pt.getX()
```

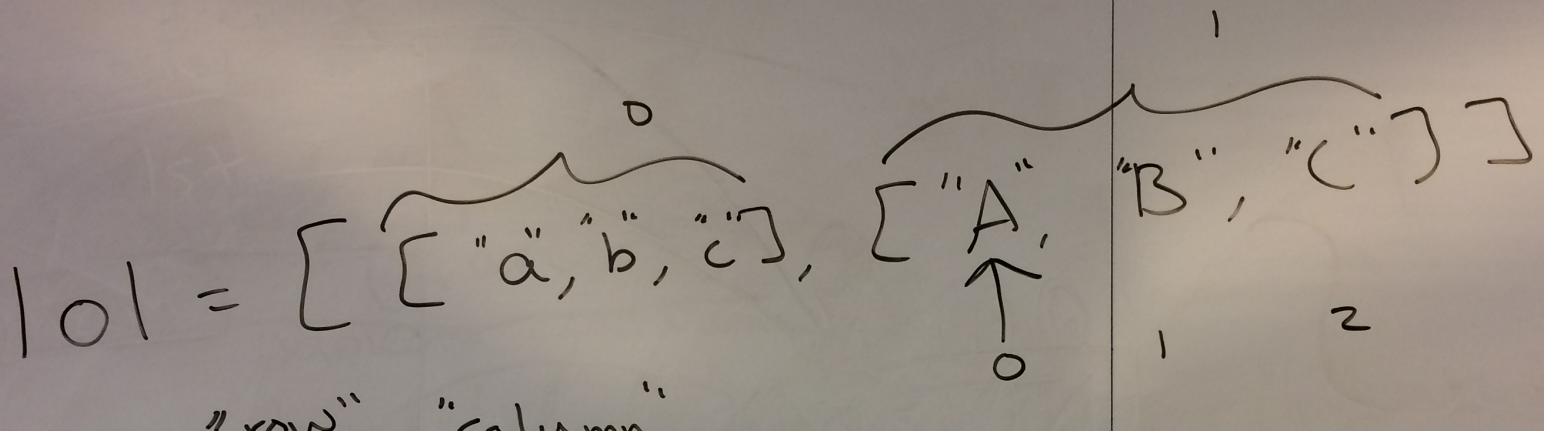
- Both methods and functions can return nothing (print or mutate):

```
display(board)
lst.append(item)
```

Stack Diagrams (review)


swap
i
j
lst
temp
shuffle
lst
main
num_lst
2
0
"hi"
6
7
4
6
5
index 0 1 2 3
variable names
heap for values
stack
before: [4, 5, 6, 7]
after: [7, 5, 4, 6]

List-of-Lists (LOLs)



"row" "column"

lol [1][0]

list

inner list

Outer list