Lecture 5

Puzzles

Global Variable VS Local Variable

What are the global/local variables as you step through the program?
e.g.,

- Line 1
  - None
- Line 5
  - Global: a -> 3
  - Local: None
- Line 6
- ...

```
1    def foo(b):
2        c = b + a
3        return c
4
5    a = 3
6    d = foo(5)    d = foo(a)
7    print(d)
```
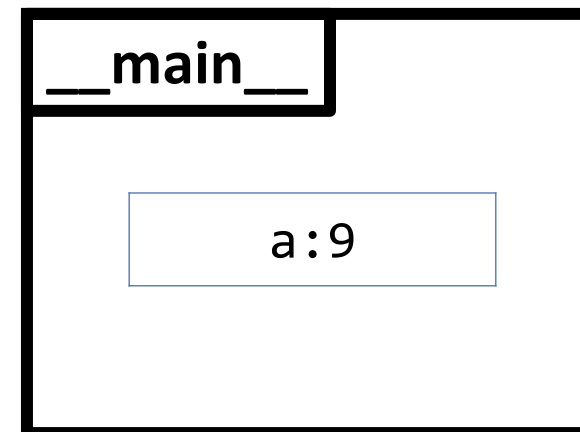
🤔

Function Call Another Function

```
 1  def foo_1(b):
 2      b += foo_2(b)
 3      return b
 4
 5  def foo_2(c):
 6      c *= 2
 7      return c
 8
 9  a = 3
10  a = foo_1(a)
11  print(a)
```

If you use the debugger, do you see that many stacks?

Please describe what you saw

Output:
9

__main__

a:9

What is the value of x? 🤔

```
1    def foo_2(a):
2        a = a * a
3        return a
4
5    def foo_1(a):
6        a += 1
7        b = a * 2
8        d = foo_2(a) + foo_2(b)
9        return d
10
11   a = 3
12   x = foo_1(a)
```

Draw the Memory Model 🤔

```
1   def foo_2(a):
2       a = a * a
3       return a
4
5   def foo_1(a):
6       a += 1
7       b = a * 2
8       d = foo_2(a) + foo_2(b)
9       return d
10
11  a = 3
12  x = foo_1(a)
```

Without using the debugger or the visualizer!