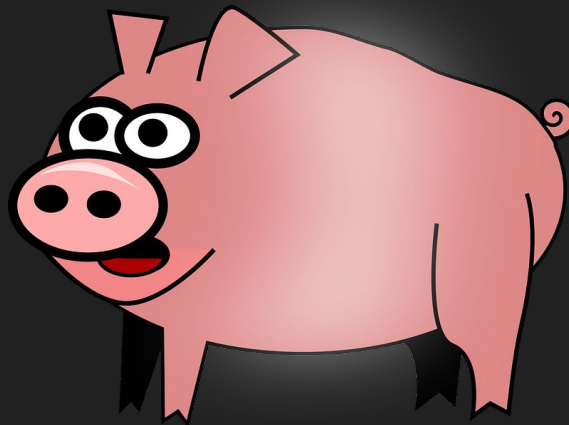


# CS61A: Discussion 1

# Announcements

- HW 0 and HW 1 Due Today!!!! orz
- Lab 1 Due Tomorrow
  - If you have not checked off, don't worry you can do that next week
- HW 2 Due Next Tuesday
- Hog Due Next Thursday



# Order of Evaluation

- Left to Right (for assignments evaluate right side of the equal sign first)
- Top to Bottom
- Inside to Outside

```
1 thing = f(max(3,5), g(4,5))  
2 print(thing)|
```

# Environment Diagrams

# What are they?

- A method of visualizing the bindings of names to objects (values) in the program's current state.
- What's a frame?
  - A subset of the environment which determines how values are looked up within the frame.
  - A frame is opened whenever a user-defined function is called

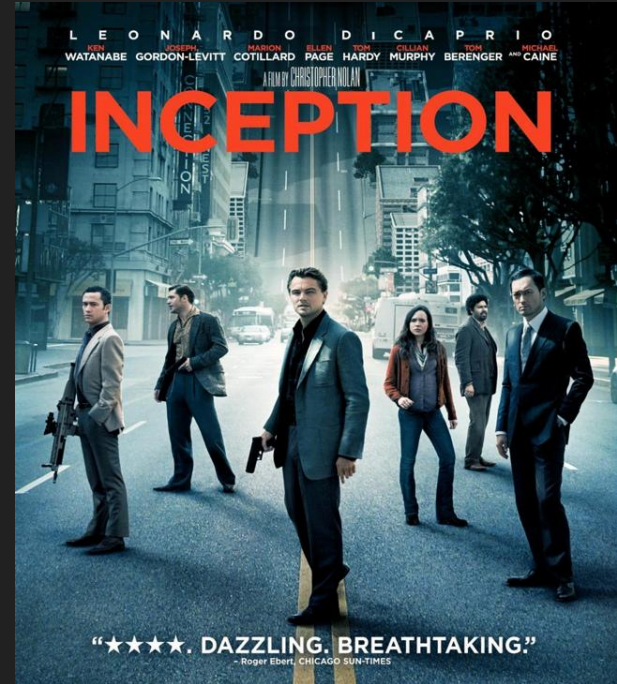
# Key Rules to Value Lookup

- Each frame has a parent (except for the Global frame)
- When looking up a value
  - First check if this value is in the current frame
  - If not there, go to the parent frame and repeat
- An assignment will error if that name is not in the current frame

# Higher Order Functions

# Function within a function

- Don't be too scared, treat them like any other variable, but with an extra rule
  - When the defined function is called, the parent frame is the frame in which it was defined.
- This changes how value lookup works within the inner function





Example Time

- Evaluate `outer(5)`
- <https://goo.gl/PcK4nt>

```
1  def outer(x):  
2      y = 1  
3      def inner(y):  
4          return x + y  
5      return inner(5)  
6  
7  x = 3  
→ 8  outer(5)
```

Worksheet Time!

# Control Statements

# If Statement

- What do we need (bare minimum):
  - A condition
  - What to do if the condition is true
- What you can also have:
  - Elif case (a fall through condition check)
  - Else case (if all the conditions are false)

# While Statement

- While a condition is true, we evaluate the body, then loop back to the top again
- Use this so you don't have to write infinite if cases
- Be careful of triggering infinite loops!
  - Ex. While True:
    - `print("get me out")`
  - To prevent this, make sure your condition will eventually be false

# Iteration

- While loops bring in the idea of iteration
- Iteration is the act of repeating instructions until a certain result is achieved
- Simple Example:
  - Exponentiation using only a while loop!
  - <http://pythontutor.com/live.html#mode=edit>

Worksheet Time



# Reminders

- Start Hog early!
- Come to office hours
- Fill out my google form!
  - If you didn't get an email, come talk to me or shoot me an email [jjhong922+61A@berkeley.edu](mailto:jjhong922+61A@berkeley.edu)