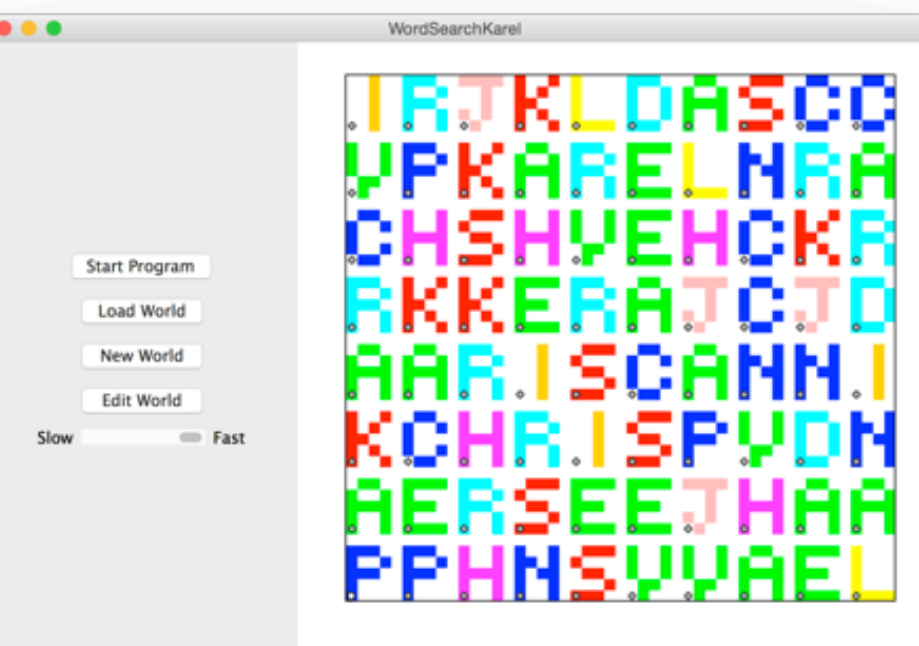
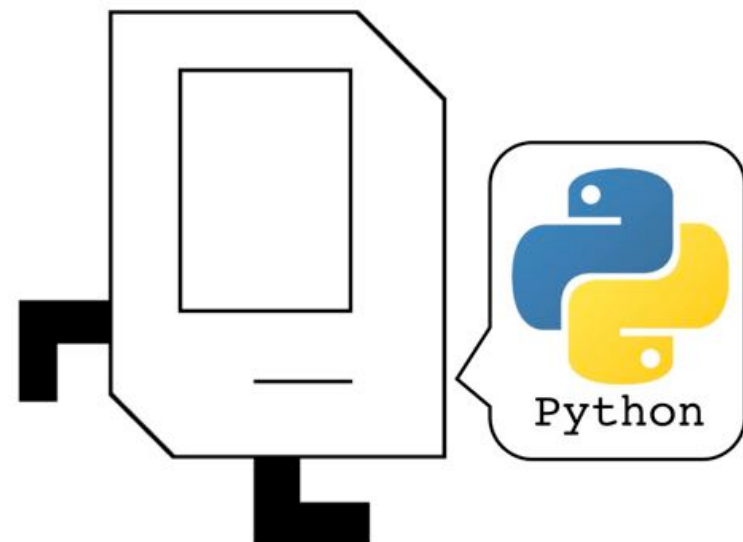




Overview

Chris Piech + Mehran Sahami
CS106A, Stanford University

You have come a long way



Karel Reader

compedu.stanford.edu/karel-reader/docs/python/en/chapter5.html

Karel

1 - Meet Karel

2 - Programming

3 - New Functions

4 - Decomposition

5 - For Loops

6 - While Loops

7 - Conditionals

8 - Refinement

9 - Extra Features

10 - Reference

11 - Code

beepers by replacing `count` with 42 and putting the command `put_beeper()` inside of the `for` loop code block. We call commands in the code block the **body**:

```
# File: PlaceManyBeepers.py
# -----
# Places 42 beepers using a for loop
from karel.stanfordkarel import *

def main():
    move()
    # repeat put_beeper many times
    for i in range(42):
        put_beeper()
    move()
```

Run Program

The code above is **editable**. Try to change it so that it places only 15 beepers.

Matching Postconditions with Preconditions

The previous example gives the impression that a `for` loop repeats a single line of code. However the body of the `for` loop (the statements that get repeated) can be multiple lines. Here is an example of a program that puts a beeper in each corner of a world:

```
# File: CornerBeepers.py
# -----
# Places one beeper in each corner
from karel.stanfordkarel import *
def main():
    # repeat the body 4 times
    for i in range(4):
        put_beeper()
        move()
        move()
        move()
        turn_left()
```

Run Program

Pay very close attention to the way that the program flows through these control statements. The program runs through the set of commands in the `for` loop body one at a time. It repeats the body four times.

A very unique covid edition CS106A experience



COVID-19 EDITION 🦟

Class is 100% online.
Diagnostics not exams.
Same great projects.
Same great sections.
Just as much feedback.
Mastery & learning +
S/NC. [Learn more.](#)



COURSE VALUES

Everyone is welcome.
Intellectual joy.
Be kind. Be humane.
Social connection.
Learn by doing.
Thrill of building.
Adapt to new contexts.
[Especially in a hard time.](#)



ed CS106A - Discussion

us.edstem.org/courses/2695/discussion/124604

ed CS106A - Discussion

New Thread

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Everyone meet ed!

Chris Piech **INSTRUCTOR**

2 months ago in General

UNPIN STAR WATCHING VIEWS

7

Welcome to CS106A!

Ed is the discussion forum that we are going to use for CS 106A. You can send a message to the staff by making it private, or you can send questions, or posts to the entire group. Make sure to check out our [Course Communication Handout](#) to understand what Ed is best for, but in short, it's a great forum for administrative questions, quick conceptual questions about office hours or understanding what an error message means.

To get you started, try replying to this post with a quick introduction to the class!

This is the best place to ask questions about the course, whether curricular or administrative. You will get faster answers here from staff and peers than through email.

[Here](#) are some ed norms:

- Try to get to the heart of your question so that its easier for folks to answer them.
- Don't post portions of your solution code publicly - please make a private post instead.
- Search before you post. Has your question already been answered?
- Heart questions and answers you find useful
- Answer questions you feel confident answering
- Share interesting course related content with staff and peers

For more information on Ed Discussion, you can refer to the [Quick Start Guide](#).

All the best this quarter!

Chris + the rest of the teaching team.

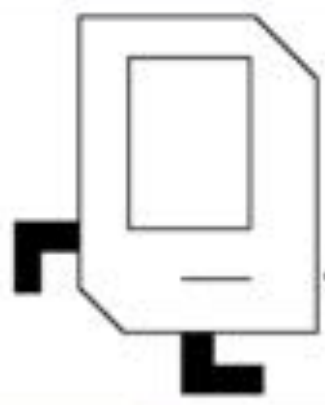
Comment Edit Delete

Add comment

21 others online



733 Answers
338 Comments



`call_me()`

Roadmap

Karel

Day 1!

YOU
ARE
HERE

Python Core

Diagnostic

Graphics

Images

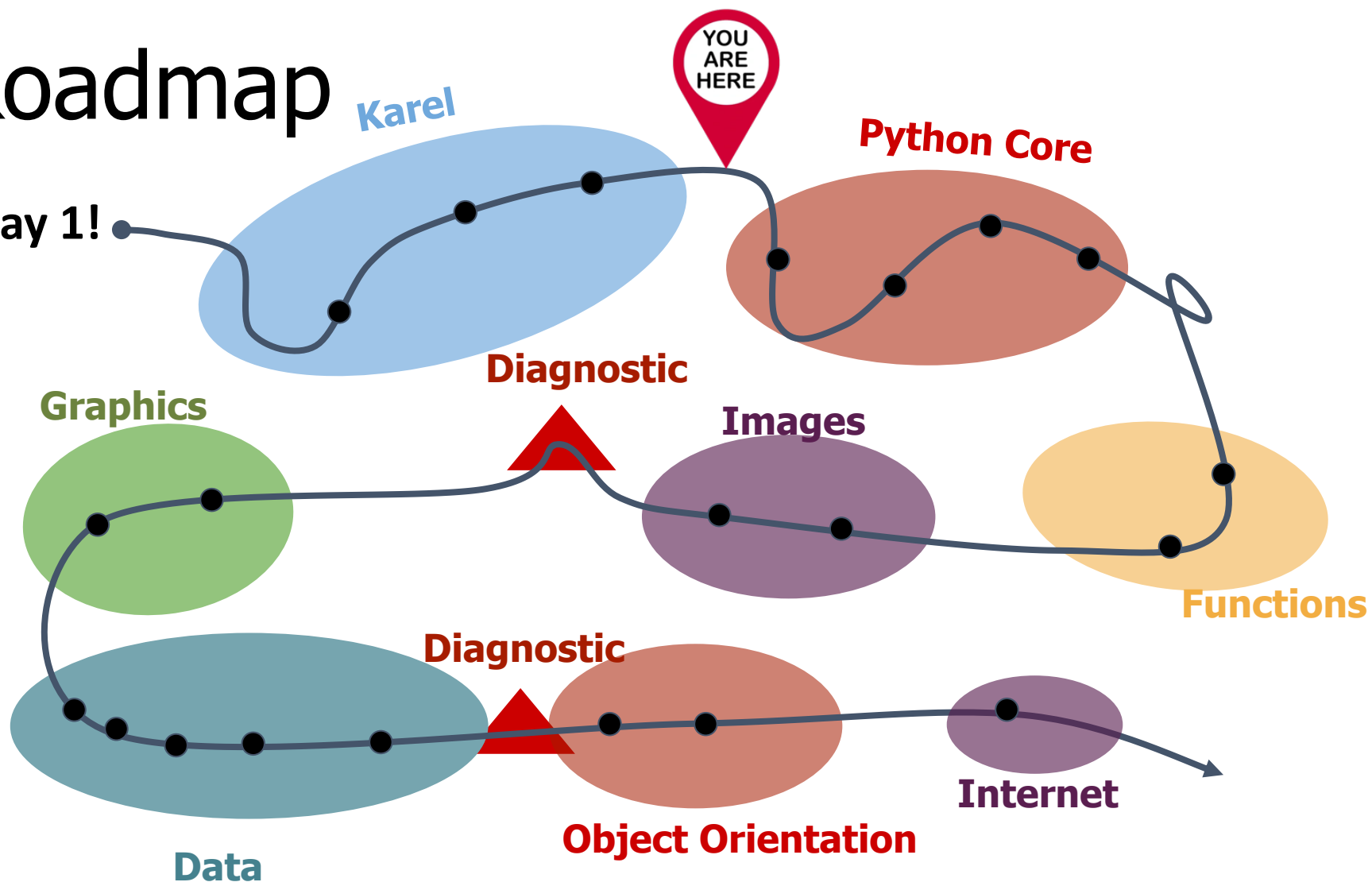
Functions

Diagnostic

Data

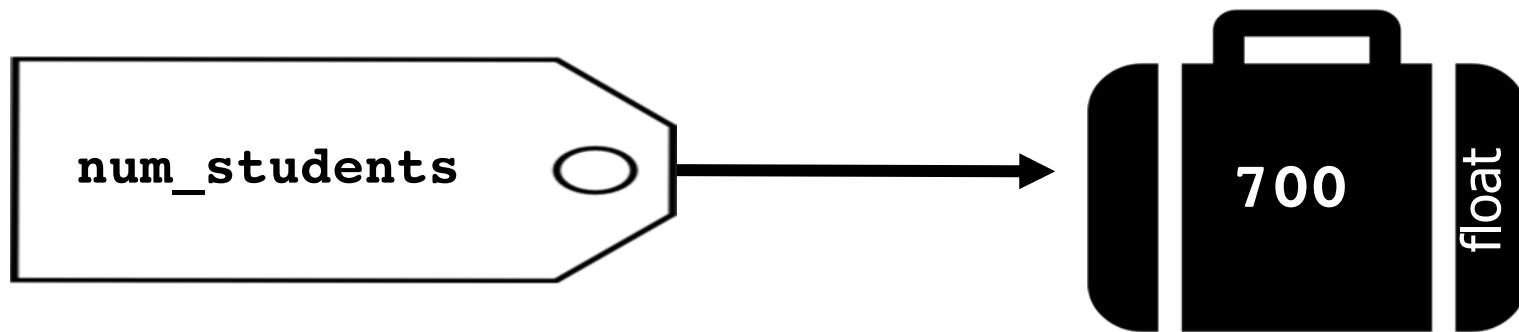
Object Orientation

Internet



1. Introduction to Python
2. Understanding variables





parameter(s)



return

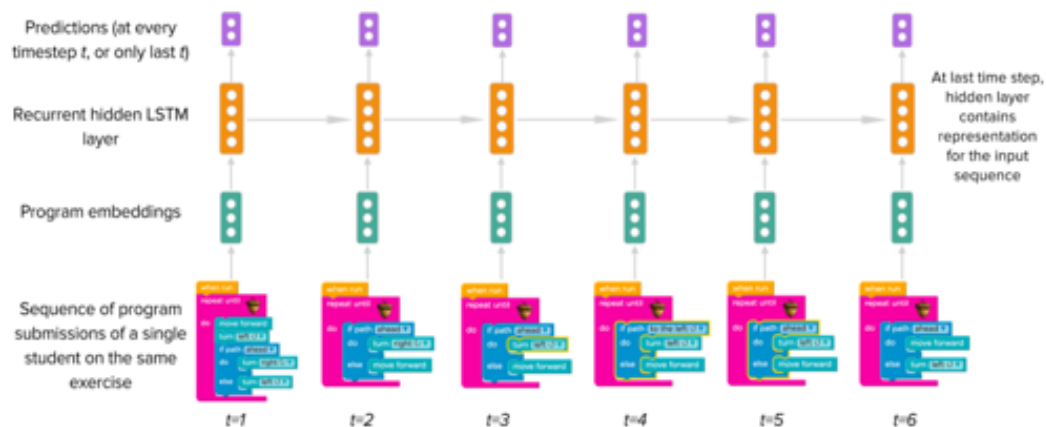


```
GameShow
Welcome to the CS106A game show!
Choose a door and win a prize
Door: 2
You chose door 2
You win $ [REDACTED]
```

A screenshot of a terminal window titled "GameShow". The window displays the following text: "Welcome to the CS106A game show!", "Choose a door and win a prize", "Door: 2", "You chose door 2", and "You win \$" followed by a black redaction box.



KHAN-sole
ACADEMY



What is $51 + 79$?

Your answer: 120

Incorrect. The expected answer is 130

What is $33 + 19$?

Your answer: 42

Incorrect. The expected answer is 52

What is $55 + 11$?

Your answer: 66

Correct! You've gotten 1 correct in a row.

What is $84 + 25$?

Your answer: 109

Correct! You've gotten 2 correct in a row.

What is $26 + 58$?

Your answer: 74

Incorrect. The expected answer is 84

What is $98 + 85$?

Your answer: 183

Correct! You've gotten 1 correct in a row.

What is $79 + 66$?

Your answer: 145

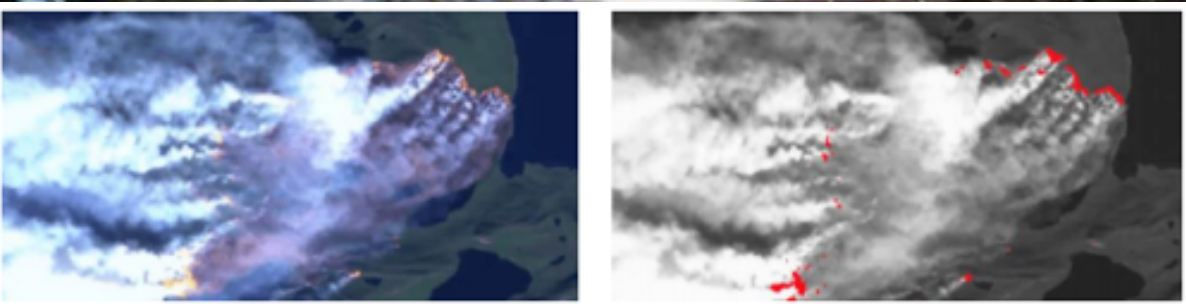
Correct! You've gotten 2 correct in a row.

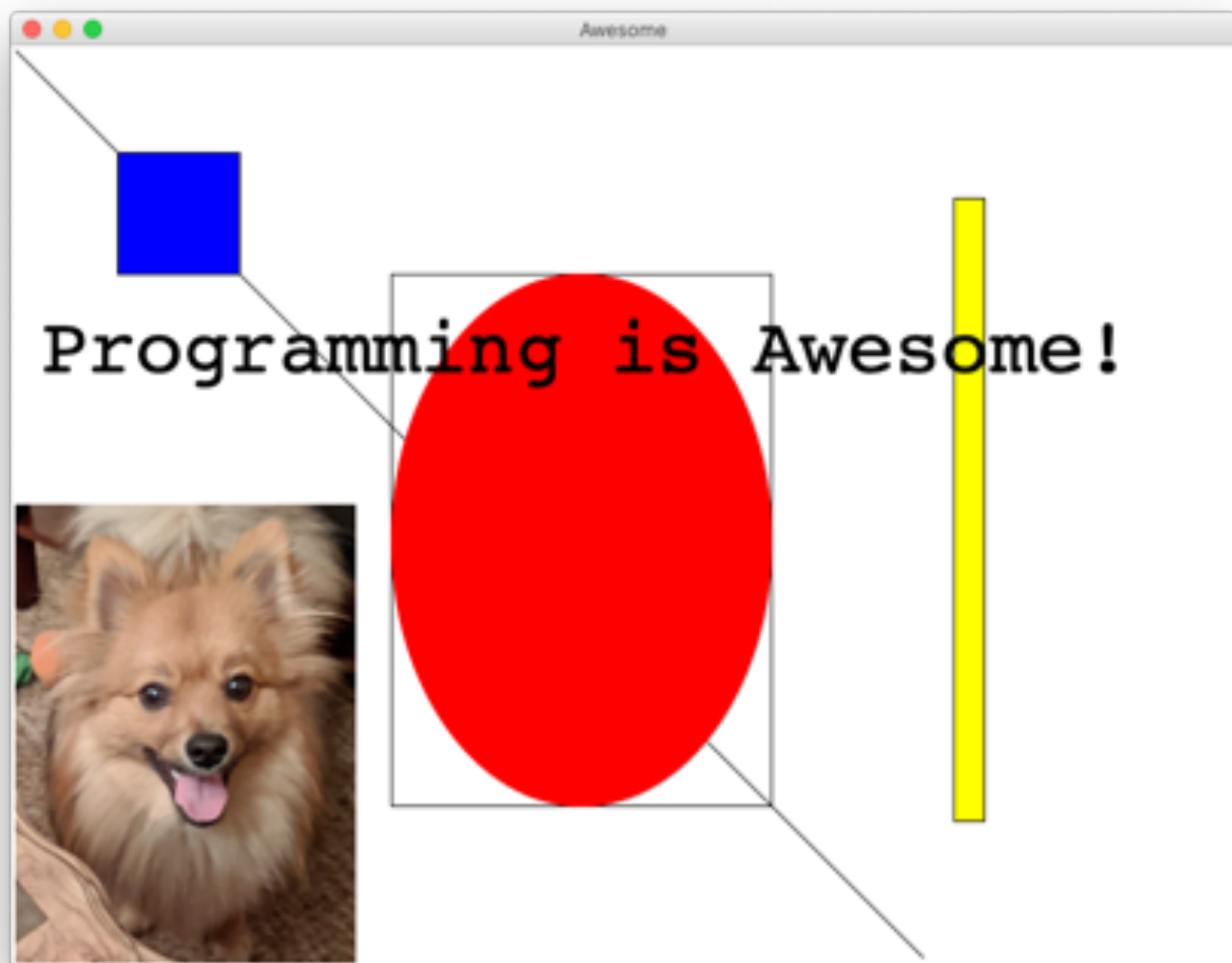
What is $97 + 20$?

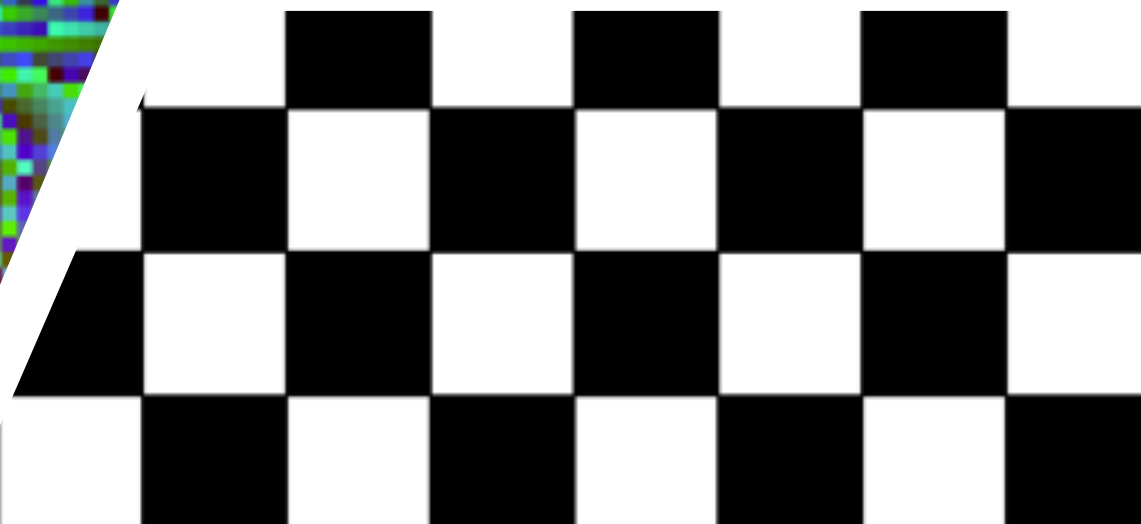
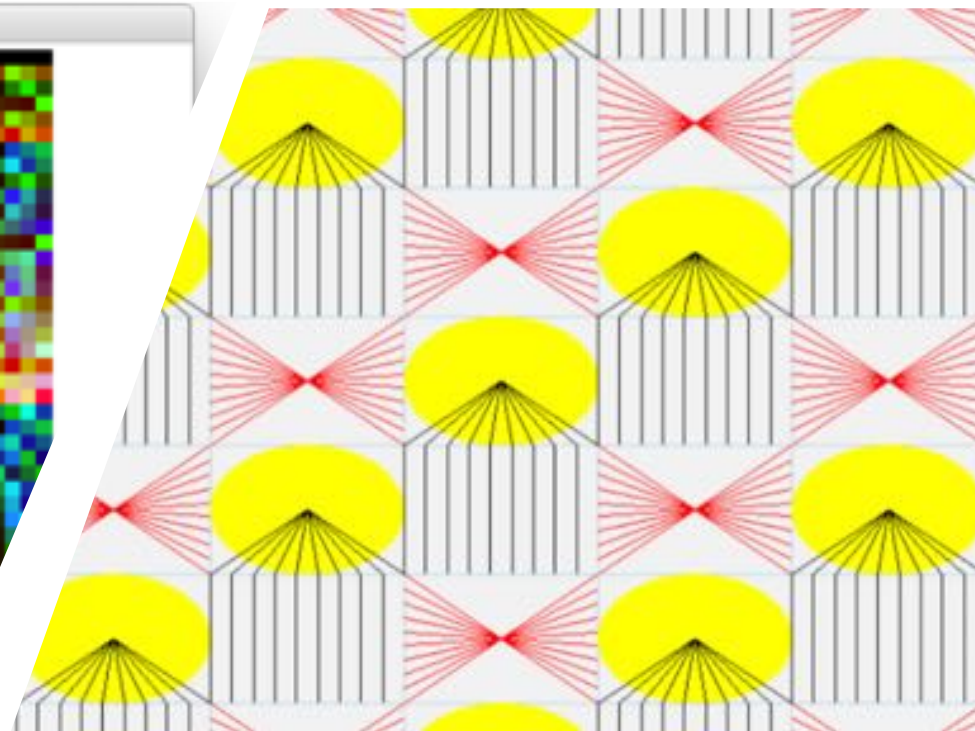
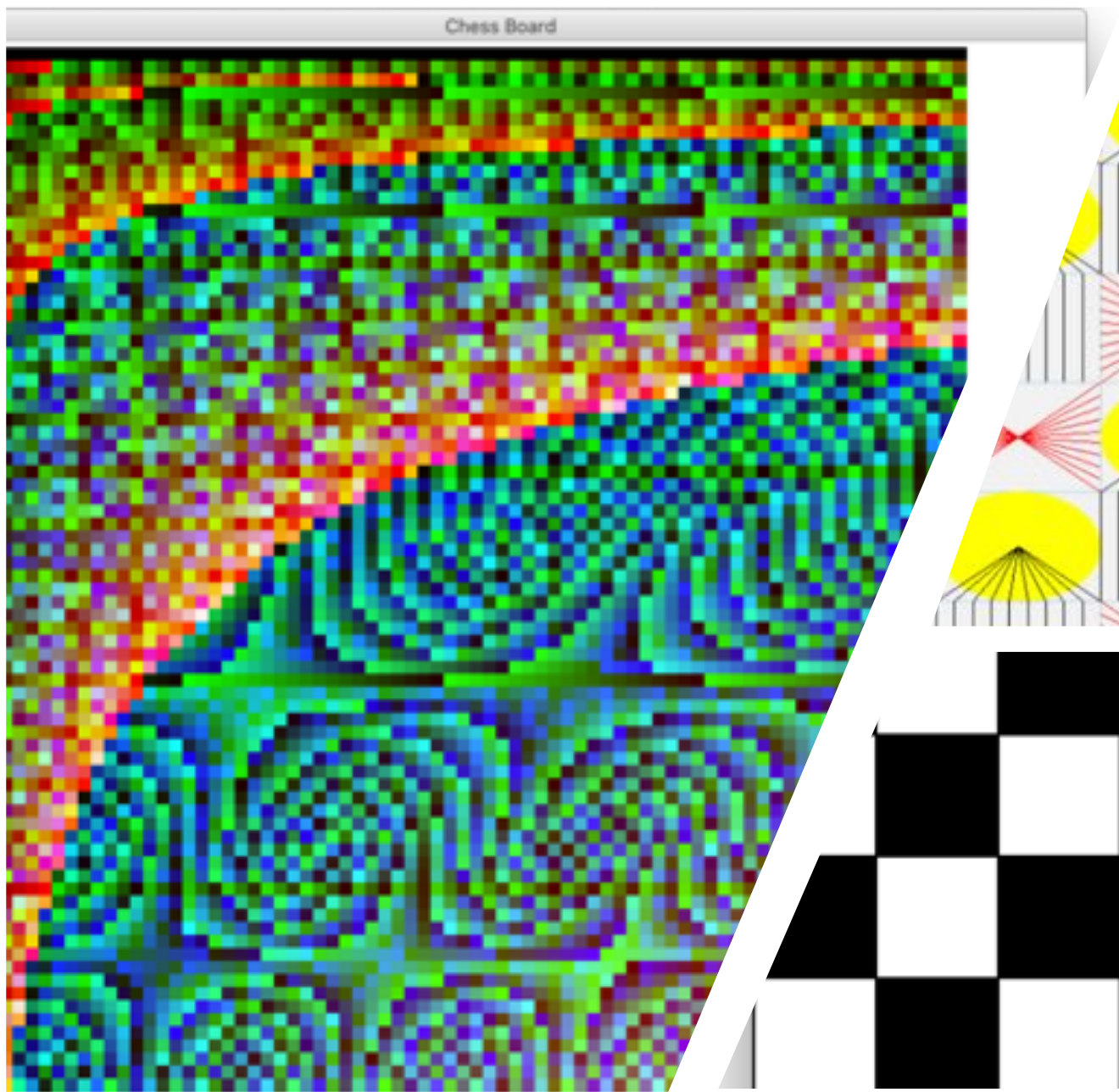
Your answer: 117

Correct! You've gotten 3 correct in a row.

Congratulations! You mastered addition.

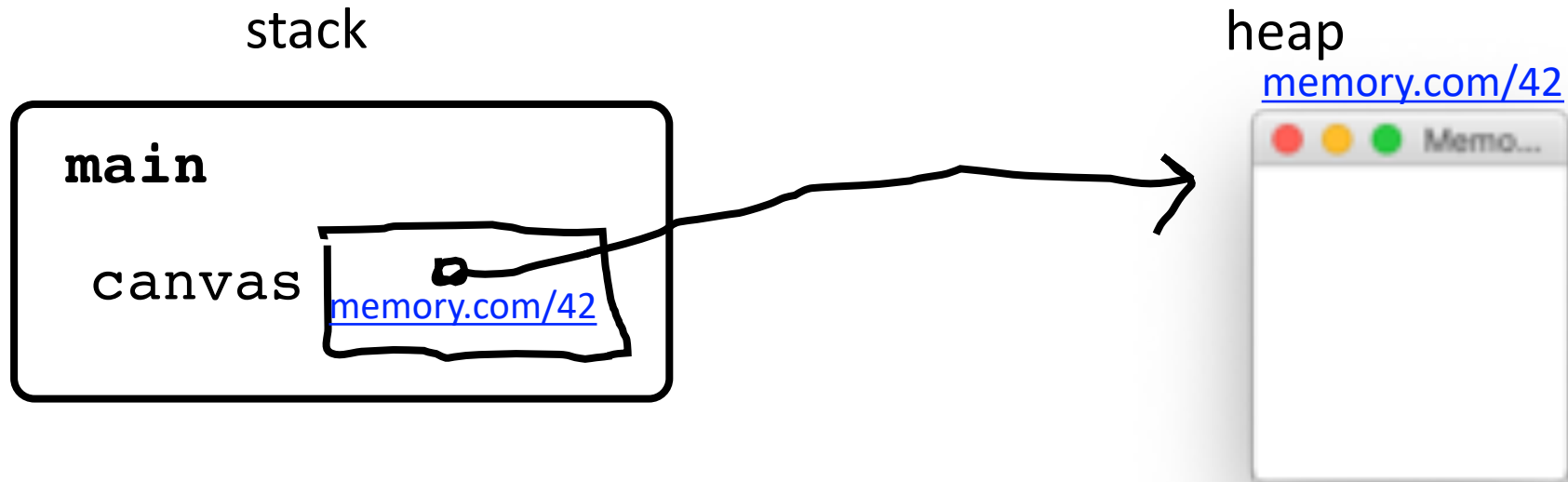


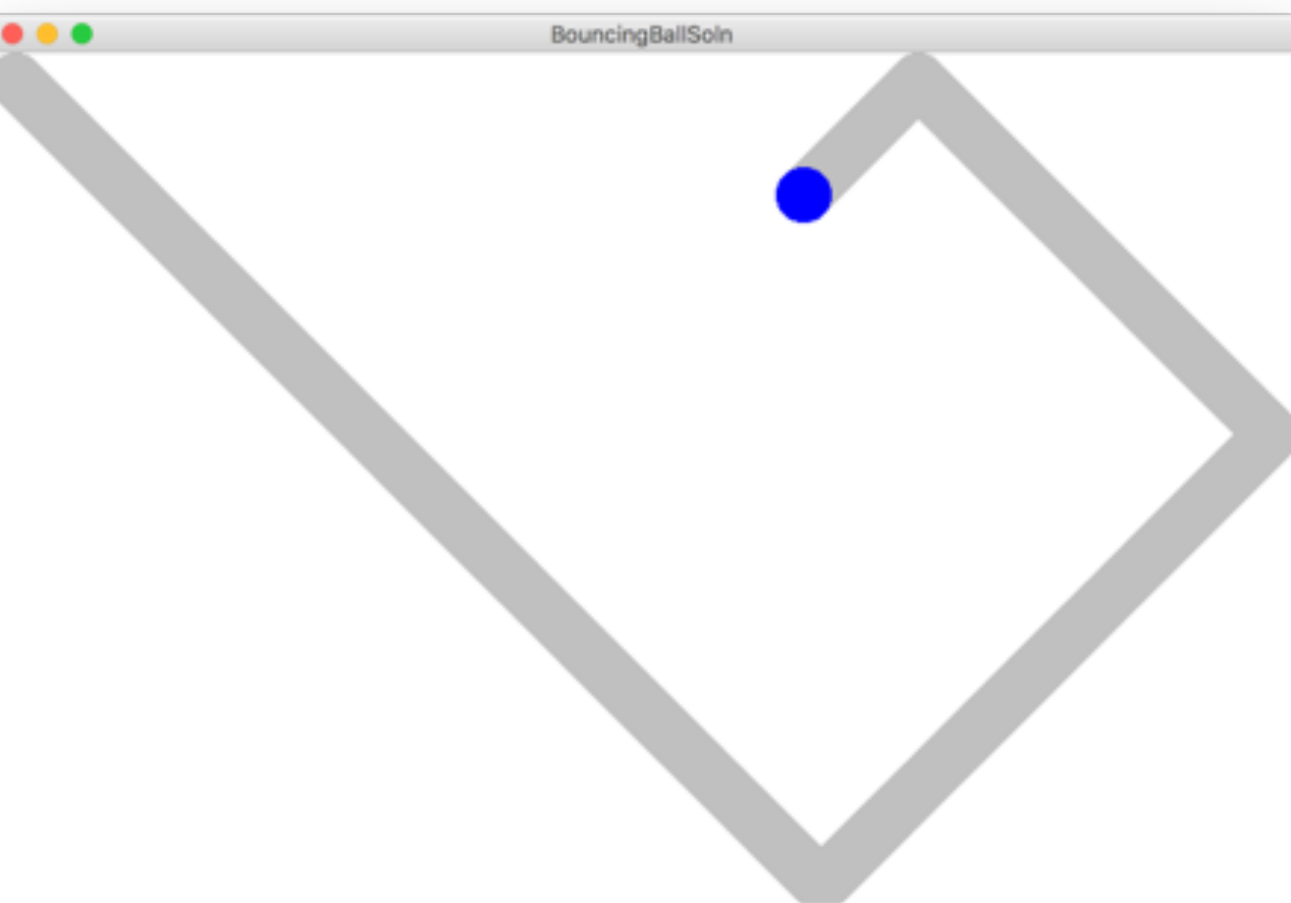




Diagnostic I

```
def main():  
    canvas = make_canvas(...)  
    draw_square(canvas)  
  
def draw_square(canvas):  
    canvas.create_rectangle(20, 20, 100, 100)
```










type a single letter here, then press enter: *a*
That guess is correct.
The word now looks like this: -A---
You have 8 guesses left
Type a single letter here, then press enter: *q*
There are no Q's in the word
The word now looks like this: -A---
You have 7 guesses left
Type a single letter here, then press enter: *p*
That guess is correct.
The word now looks like this: -APP-
You have 7 guesses left
Type a single letter here, then press enter: *C*
There are no C's in the word
The word now looks like this: -APP-
You have 6 guesses left
Type a single letter here, then press enter: *H*
That guess is correct.
The word now looks like this: HAPP-
You have 5 guesses left



Lists

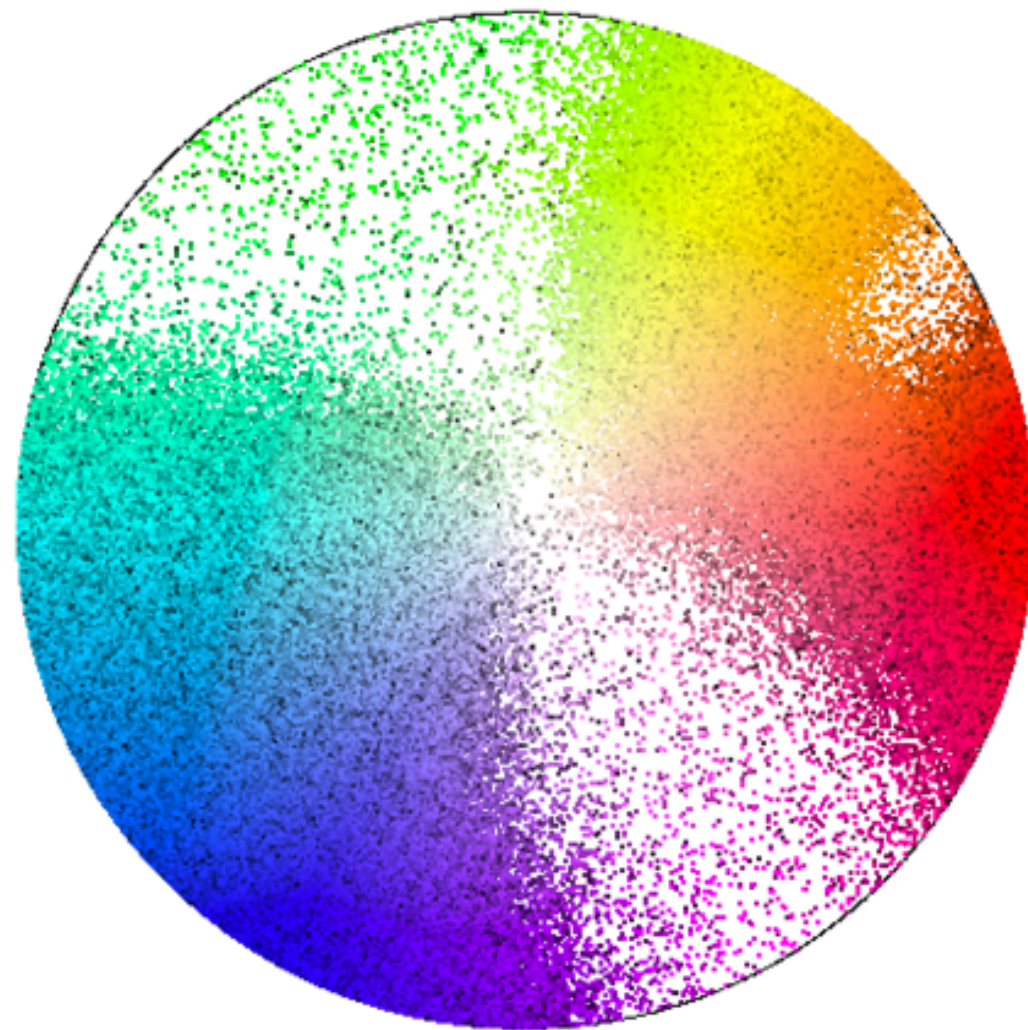
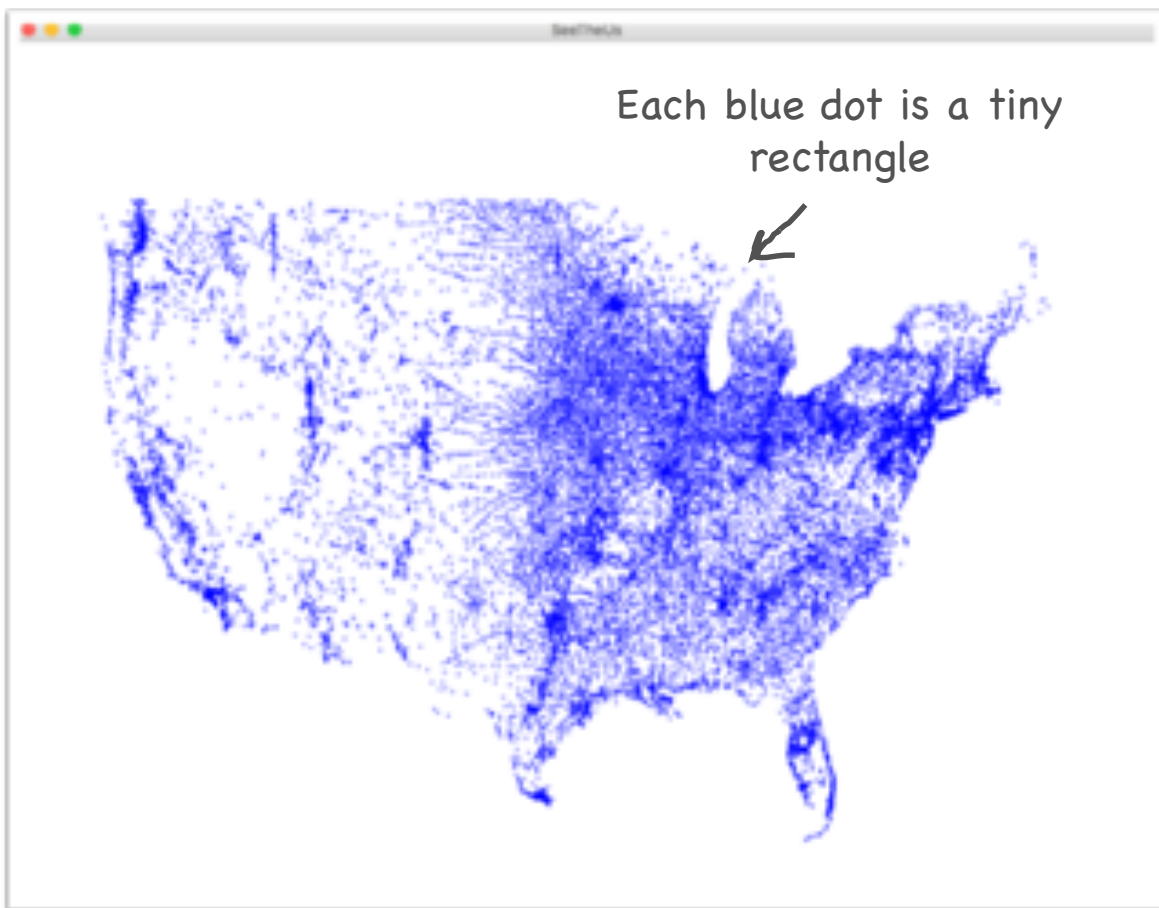
```
[, , , 
```

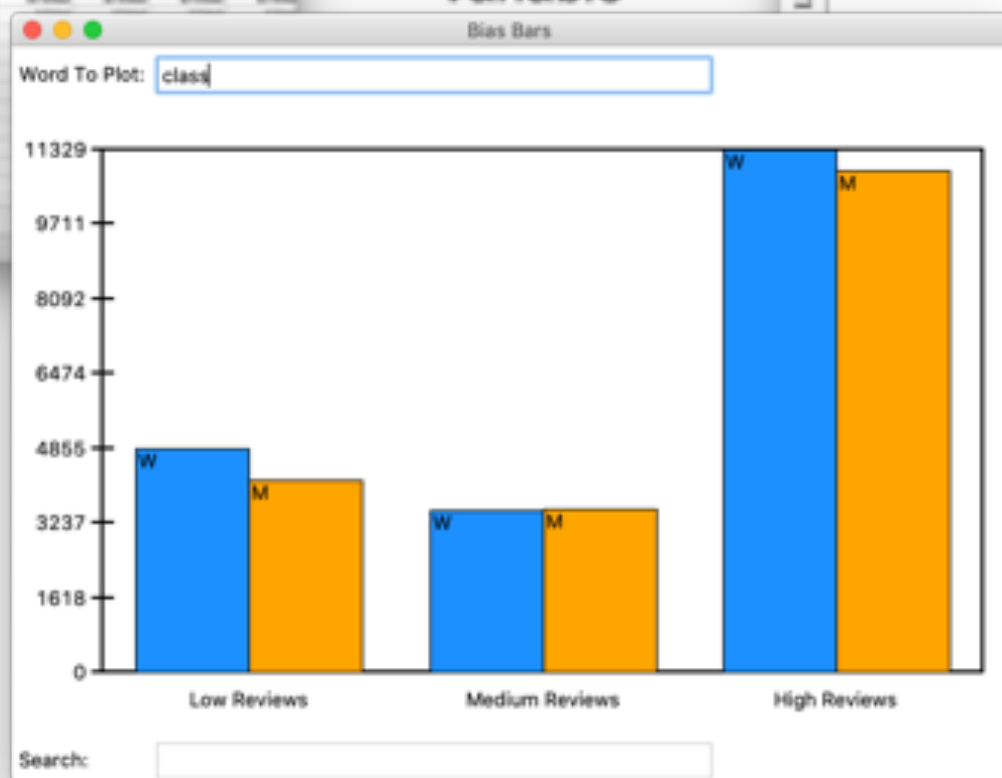
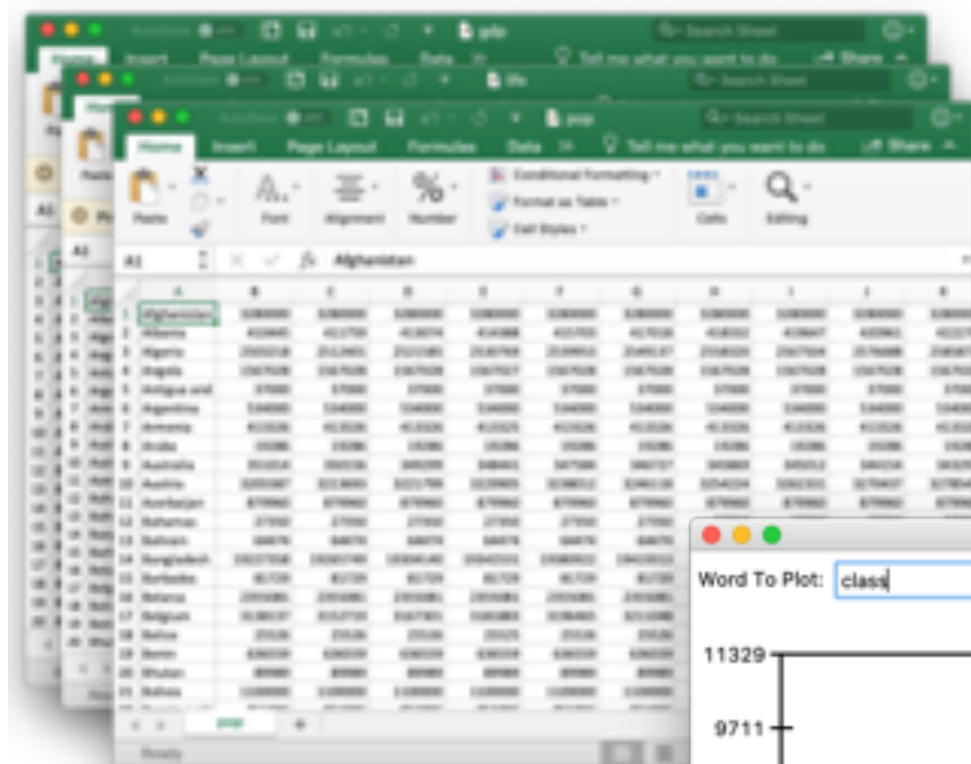
Dictionaries

```
{ 'breakfast': ,  
  'lunch': ,  
  'dinner':  }
```

2D Lists

```
[ [, , ,  ],  
  [, , ,  ],  
  [, , ,  ] ]
```





Milestone 8: Identifying bias in the dataset and other interesting data science ethics questions

In this milestone you are going to think critically about the RateMyProfessors.com dataset and reflect on the relevant ethical issues that computer scientists should consider when working on data science problems. You will be answering the following questions in `ethics.txt`.



Send The internet is a wild place...

Messages

Refresh

> [Chris] Hello world?

> [Laura] Here I am!

> [Laura] This is fun!

> [Chris] Mahooooo :-)

> [Chris] We are on the internet...

> [Chris] This is like low-budget WhatsApp

```

Server Running...
{'command': 'getMsgs', 'params': {'index': '0'}}
{'command': 'newMsg', 'params': {'msg': 'Hello world?', 'user': 'Chris'}}
{'command': 'getMsgs', 'params': {'index': '0'}}
{'command': 'getMsgs', 'params': {'index': '0'}}
{'command': 'newMsg', 'params': {'msg': 'Here I am!!', 'user': 'Laura'}}
{'command': 'getMsgs', 'params': {'index': '1'}}
{'command': 'newMsg', 'params': {'msg': 'This is fun!', 'user': 'Laura'}}
{'command': 'getMsgs', 'params': {'index': '2'}}
{'command': 'getMsgs', 'params': {'index': '1'}}
{'command': 'newMsg', 'params': {'msg': 'Mahooooo :-)', 'user': 'Chris'}}
{'command': 'getMsgs', 'params': {'index': '3'}}
{'command': 'newMsg', 'params': {'msg': 'We are on the internet...', 'user': 'Chris'}}
{'command': 'getMsgs', 'params': {'index': '4'}}
{'command': 'newMsg', 'params': {'msg': 'This is like low-budget WhatsApp', 'user': 'Chris'}}
{'command': 'getMsgs', 'params': {'index': '5'}}
{'command': 'getMsgs', 'params': {'index': '3'}}
{'command': 'getMsgs', 'params': {'index': '6'}}
{'command': 'getMsgs', 'params': {'index': '6'}}
{'command': 'getMsgs', 'params': {'index': '6'}}
{'command': 'getMsgs', 'params': {'index': '6'}}
{'command': 'newMsg', 'params': {'msg': 'But we made it, which is cool.', 'user': 'Laura'}}
{'command': 'getMsgs', 'params': {'index': '6'}}

```

Search

localhost:8000

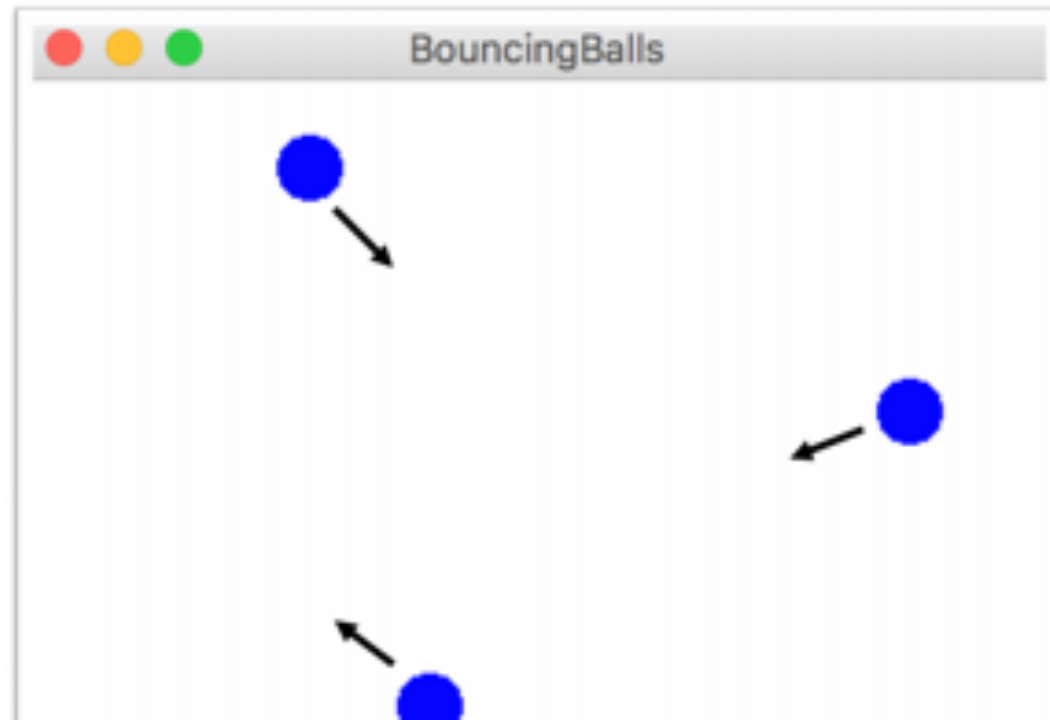
Bajillion World wide web

[Can Yahoo dominate next decade?](#)
...But for others there is another, newer net icon threatening to overshadow Yahoo in the post dot-com world - Google. The veteran and the upstart have plenty in common - Yahoo was the first internet fi...

[Yahoo celebrates a decade online](#)
...f people and the two saw business potential in their idea. Originally dubbed "Jerry's Guide to the World Wide Web" the firm adopted the moniker Yahoo because the founders liked the dictionary definit...

[Musical future for phones](#)
...re's never anything worth watching on TV", is hardly going to embrace these phones. But just as the World Wide Web was the "killer application" that drove internet adoption, music videos are going to ...

[Rolling out next generation's net](#)
...e web. At Cern, Dr Carpenter helped pioneer advanced net applications



Draw your number here



Downsampled drawing: 0

First guess: 0

Second guess: 8

Layer visibility

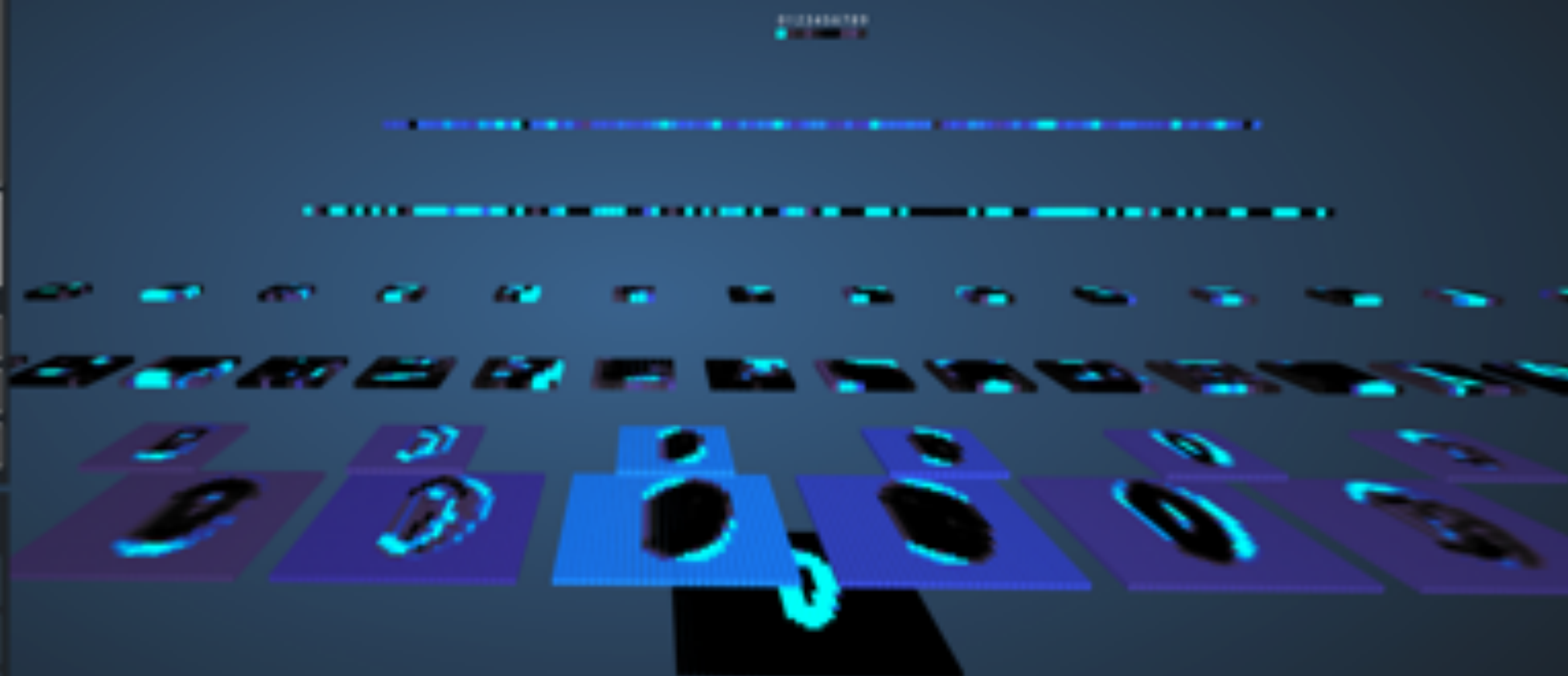
Input layer [Show](#)

Convolution layer 1 [Show](#)

Downsampling layer 1 [Show](#)

Convolution layer 2 [Show](#)

Downsampling layer 2 [Show](#)



By the numbers

10 weeks

7 hard assignments

27 lectures

50+ major keys



60,000+ person hours
programming

1 class 😊

You have our respect.

Why Study CS?

Joy of Building



Interdisciplinary



Closest Thing To Magic



Now is the Time



Everyone is Welcome



The End