

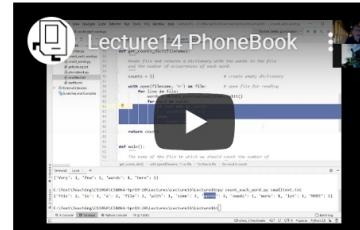
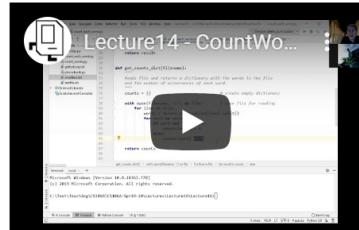
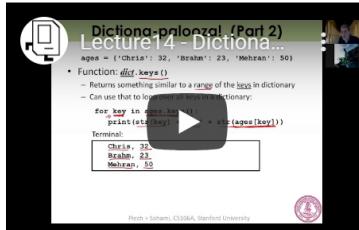
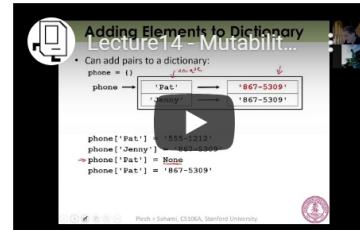
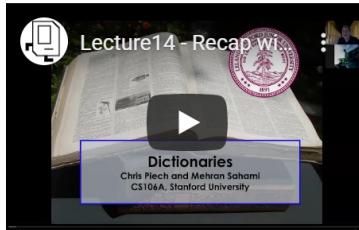
Lectures

Lectures are released every Monday/Wednesday/Friday at 10am PDT.

Lecture 14 - Dictionaries

MAY 13TH, 2020

⚠ Final projects start today!



Lecture Files

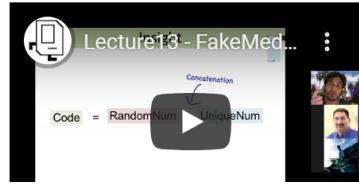
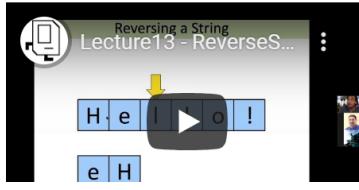
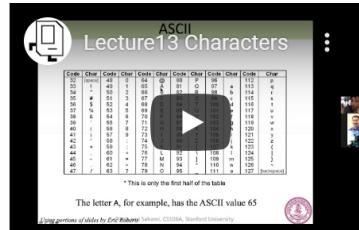
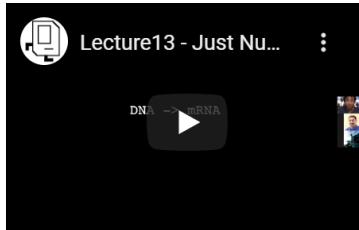
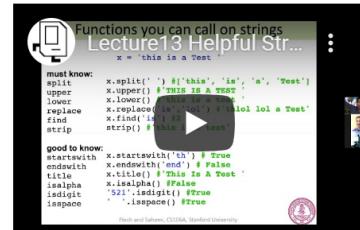
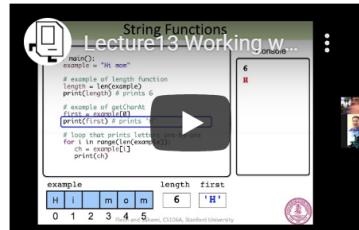
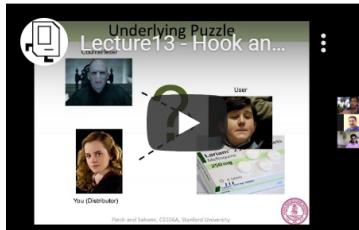


Learn how to work with dictionaries a new container

Lecture 13 - Text Processing

MAY 13TH, 2020

⚠ Your last section is today! Submit your assignment 3.





Lecture Files



Slides



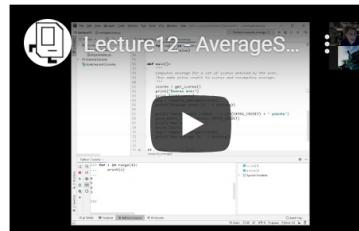
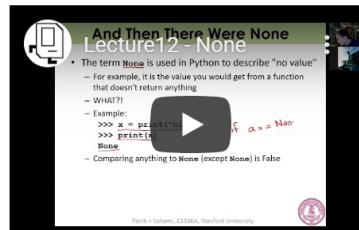
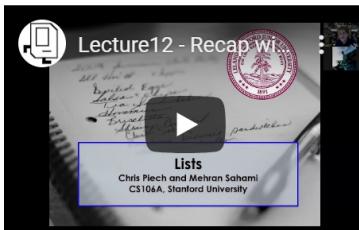
Lecture Code

Learn how to work with strings

Lecture 12 - Lists

MAY 11TH, 2020

⚠ The last assignment (images) is due on Wednesday



Lecture Files



Slides



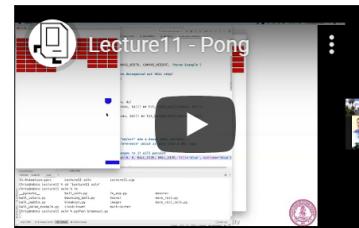
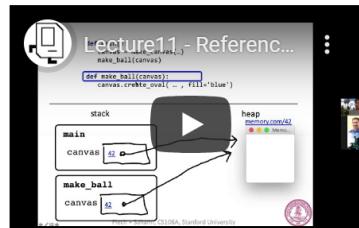
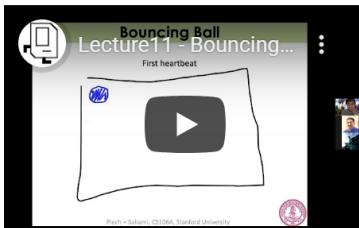
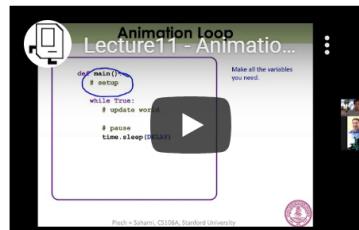
Lecture Code

Lists are truly useful for final projects

Lecture 11 - Animations

MAY 8TH, 2020

⚠ Have a great weekend. Finish your diagnostic by Sunday night



Lecture Files



Slides



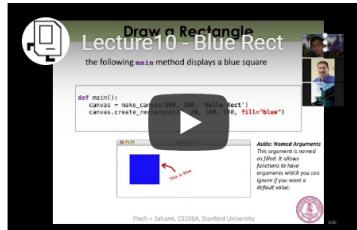
Lecture Code

Make graphics that move!

Lecture 10 - Graphics

MAY 6TH, 2020

📢 Section today is directly helpful for your next assignment!



Lecture Files



Slides



Lecture Code

Make a graphical program (first step towards movies and games)

Diagnostic Day

MAY 4TH, 2020

📢 We are giving you a day off so you have time to take the diagnostic

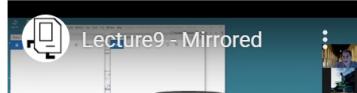
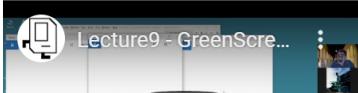
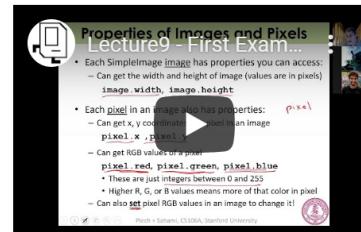


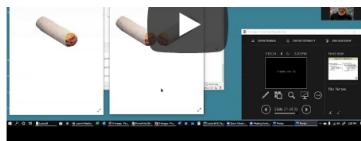
May the 4th be with you

Lecture 9 - Images

MAY 1ST, 2020

📢 The goal deadline for Assignment 2 is tonight!





Lecture Files



Slides



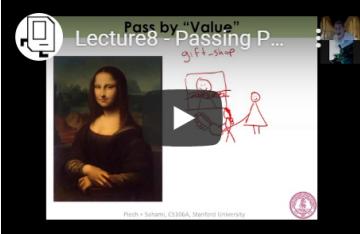
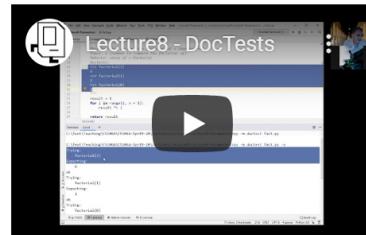
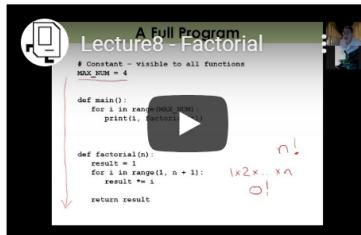
Lecture Code

Edit photos from Python!

Lecture 8 - Functions More Practice

APRIL 27TH, 2020

► What's the best way to master this concept? Going to section!



Lecture Files



Slides



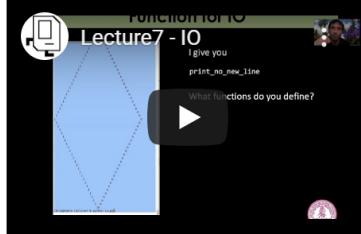
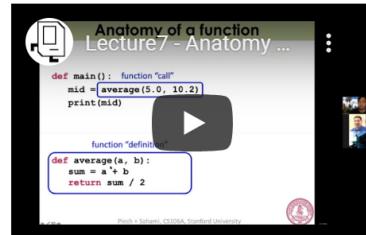
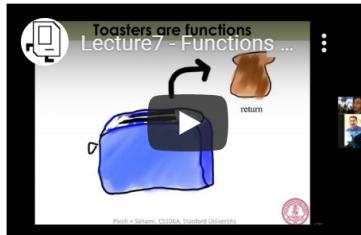
Lecture Code

More practice with functions is always a good time.

Lecture 7 - Functions Revisited

APRIL 27TH, 2020

► Welcome back to week 3. If you haven't gotten started on assignment 2, its time to get going on it!



Lecture Files



Slides



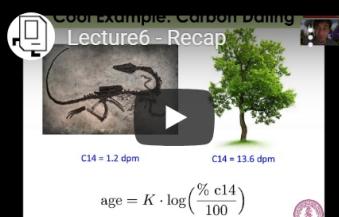
Lecture Code

Revisiting functions. Now with parameters and returns.

Lecture 6 - Control Flow Python

APRIL 24TH, 2020

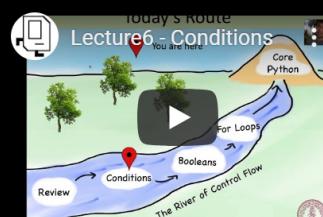
Have a wonderful weekend and we will see you back here on Monday.



Color Examples: Carbon Diving
Lecture6 - Recap

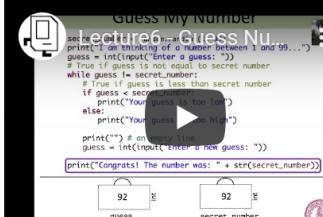
C14 = 1.2 dpm C14 = 13.6 dpm

$$\text{age} = K \cdot \log\left(\frac{\% \text{C14}}{100}\right)$$



TODAY'S ROUTE
Lecture6 - Conditions

Core Python
For Loops
Booleans
Conditions
The River of Control Flow
Review



Guess My Number
Lecture6 - Guess Nu...

```
secret_number = 7
guess = int(input("Enter a guess: "))
if guess < secret_number:
    print("Your guess is too low")
else:
    print("Your guess is too high")
print("Congrats! The number was: " + str(secret_number))
```

guess secret_number



George Boole
Lecture6 - Booleans

English Mathematician teaching in Ireland 1815 – 1864
Boole died of being too cool



You can use the for loop variable
Lecture6 - For Loops



The Door Logic
Lecture6 - GameSho...

```
prize = 4

if door == 1:
    prize = 2 * 0 // 10 * 100
elif door == 2:
    locked = prize // 2 != 0
    if not locked:
        prize *= 6
    else:
        prize += 1
elif door == 3:
    for i in range(door):
        prize += 1
```

Lecture Files



Slides



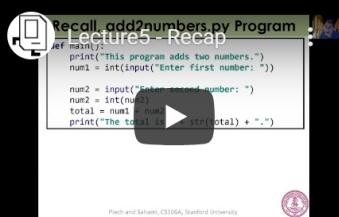
Lecture Code

Our old friends while/if/for, but now in native python.

Lecture 5 - Expressions

APRIL 22ND, 2020

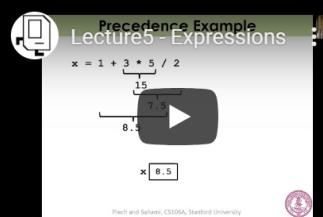
Please go to your second section! Support your section leader :-)



Recall, add2numbers.py Program
Lecture5 - Recap

```
area = 3.14159 * radius * radius
print("This program adds two numbers:")
num1 = int(input("Enter first number: "))

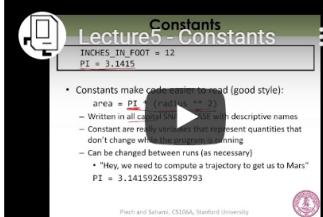
num2 = input("Enter second number: ")
num2 = int(num2)
total = num1 + num2
print("The total is " + str(total))
```



Precedence Example
Lecture5 - Expressions

$$x = 1 + 3 * 5 / 2$$

Annotations: 15, 7.5, 8.5



Constants
Lecture5 - Constants

```
INCHES_IN_FOOT = 12
PI = 3.14159
```

- Constants make code easier to read (good style):
- Written in all caps to make them descriptive names
- Constant are re-used values that represent quantities that don't change while the program is running
- Can be changed between runs (as necessary)
- * Hey, we need to compute a trajectory to get us to Mars!

PI = 3.141592653589793



Python math Library
Lecture5 - Math Lib...

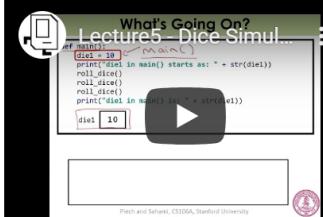
```
import math

math library has many built-in constants:
math.pi      mathematical constant pi
math.e      mathematical constant e

and useful functions:
math.sqrt(x)      returns square root of x
math.exp(x)      returns e^x
math.log(x)      returns natural log (base e) of x
```



Lecture5 - Random N...



What's Going On?
Lecture5 - Dice Simul...

```
def main():
    print("dice in main() starts as: " + str(dice))
    roll_dice()
    roll_dice()
    roll_dice()
    print("dice in main() ends: " + str(dice))

dice = 10
```

Lecture Files



Slides



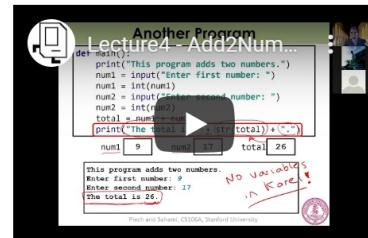
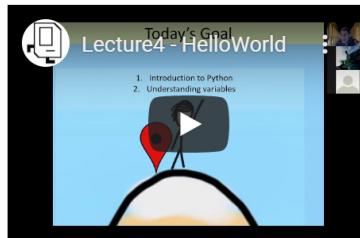
Lecture Code

The idea of variables is the next great idea in your computer science journey.

Lecture 4 - Variables in Python

APRIL 17TH, 2020

⚠ The submission system will be coming online today. Recall that this class isn't for grade!



Lecture Files



Slides



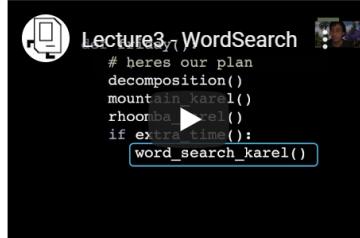
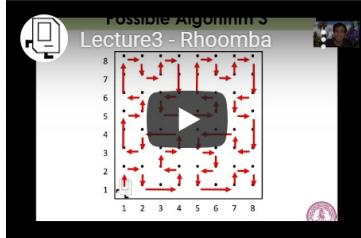
Lecture Code

The idea of variables is the next great idea in your computer science journey.

Lecture 3 - Decomposition

APRIL 17TH, 2020

⚠ How can you solve large problems in Karel? Have a great weekend and see you on Monday!



Lecture Files



Slides



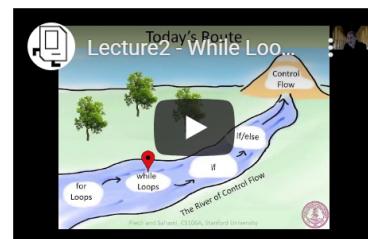
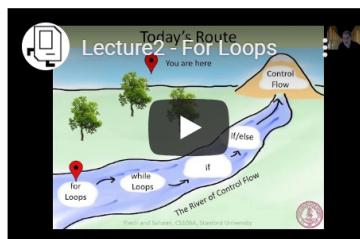
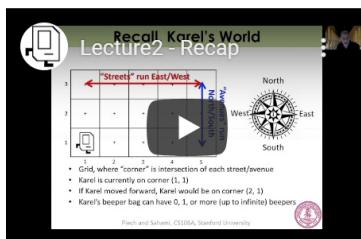
Lecture Code

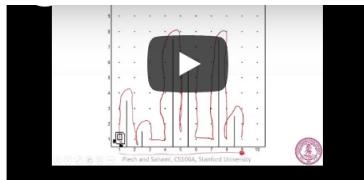
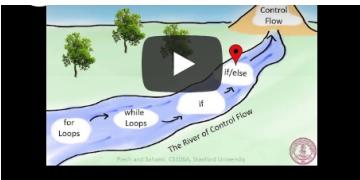
The Online Karel IDE can be found at the bottom of the assignment 1 handout.

Lecture 2 - Control Flow in Karel

APRIL 15TH, 2020

⚠ After these videos you will be ready to get started on Assn 1. Many people started earlier. Great! But not the expectation.





Lecture Files



These ideas (for, while, if) are core fundamentals of computer science. Take your time to understand them!

Lecture 1 - Welcome to Code in Place

APRIL 13TH, 2020

► Try and watch this lecture and read the rest of the Karel reader by next lecture (in about 48 hours, or Wednesday 10am PDT).



Lecture Files



We talked a bit slower than normal to make sure we were easy to understand. You can speed up the video! On Wednesday we will cover for loops, while loops and if statements