Discussion 11: Intro to Python

Warm-Up

1. What is the difference between `print` and `return` in Python?

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2. Once you write Python code, how do you run it?

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3. What is the difference between running `python3`, `python3 <filename>`, and `python3 -i <filename>`? What do each of them do?

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4. How are `while` loops in Python similar to `repeat until` loops in Snap? How do they differ?

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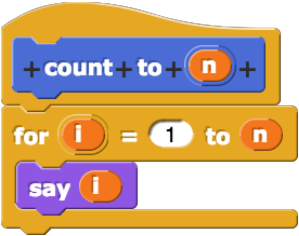
Learning a Not-So-Foreign Language

1. Translate the following expressions from Snap! to Python:

```
item (1▾) of (list 1 2 3 ◀▶)        _____

item (last▾) of (list 1 2 3 ◀▶)     _____

length of (list 1 2 3 ◀▶)           _____

add 4 to (list 1 2 3 ◀▶)            _____

delete (last▾) of (list 1 2 3 ◀▶)   _____

delete (1▾) of (list 1 2 3 ◀▶)      _____
```
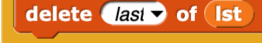
```
+ count + to + (n) +

for (i) = (1) to (n)
  say (i)
```

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2. Translate the following blocks of code from Snap! to Python line by line:

a.
```
+ is + (word) + long? +

if (length of (word) > 5)
  report (true)
else
  report (false)
```

b.
```
+ distinct + (lst) +

for (i) = (1) to (length of (list) - 1)
  for (j) = ((i) + 1) to (length of (list))
    if (item (i) of (lst) = item (j) of (lst))
      report (false)

report (true)
```

Let's Write Some Python

1. Write a function that counts the number of times a given letter appears in a given string.
Try writing this both iteratively and recursively!

```
def find_num_letters(letter, str):
```

```
def find_num_letters(letter, str):
```

2. Define the function Fizzbuzz so that it does the following:

- Iterates through the numbers 1 – 100, and for each number:
- Prints "fizz" if it is divisible by 3.
- Prints "buzz" if it is divisible by 5.
- Prints "fizzbuzz" (and *not* "fizz" or "buzz") if it is divisible by 15.
- Prints the number otherwise.

```
def Fizzbuzz():
```

Errors Galore

We wrote the function `floor_divide`, which divides a number, `big_num`, by another number, `small_num`, and then reports the answer rounded down to the nearest whole number. Unfortunately, it has a lot of syntax errors and doesn't run. Identify and fix the syntax errors in the code below:

```
def floor_divide(big_num, small_num):
    if small_num = 0:
    return You cannot divide by zero!
    current_num = small_num
    num times = 0
    while current_num <= big_num
        current_num += small_num
        num times += 1
    report num times
```