Discussion 10: Intro to Python

Warm-Up

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

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

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

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

Learning a Not-So-Foreign Language

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

   - `foo = 5`
   - `set foo to 5`
   - `change foo by 5`
   - `set foo to foo`
   - `length of word`
   - `letter 3 of word`
   - `join hello word`
   - `all but first letter of word`
   - `all but last letter of var`
2. Translate the following blocks of code from Snap! to Python line by line:

a. 

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

b. 

```
slice word
report all but first letter of all but last letter of word
```

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**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!

```python
def count_letters(letter, str):
    def count_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.

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
```