Discussion 11: 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 world`
   - `all but first letter of word`
   - `list 1 2 3`
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 + list +
```
```
for i = 1 to length of list - 1
for j = i + 1 to length of list
if item i of list = item j of list
report false
end if
end for
end for
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!

```python
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.

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:

```python
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
```