Week 2 Day 2

Aim: SWBAT analyze how functions are called in Python by comparing it to Snap coding.

Standards:
9-12.CT.4 Implement a program using a combination of student-defined and third-party functions to organize the computation
9-12.CT.5 Modify a function or procedure in a program to perform its computation in a different way over the same inputs, while preserving the result of the overall program.
9-12.CT.9 Systematically test and refine programs using a range of test cases, based on anticipating common errors and user behavior.

Do Now:

Students will recall yesterday's lesson in order to answer this do now:

Q-5: Consider the code block below. What prints?

```
def add_two(num):
    num = num + 2
    print(num)

def add_three(nums):
    nums = nums + 3
    print(nums)

hi = 4
add_two(hi)
add_three(hi)
```

- ○ **A. 67 (on the same line)**
- ○ **B. 67 (on two separate lines)**
- ○ **C. 69 (on two separate lines)**
- ○ **D. 69 (on the same line)**

Mini Lesson:

Turn and Talk: Students will work in pairs to determine the proper order for the following mixed up code.

```
1  def printName(name):
2  def printStudentInfo(stuName, stuGPA, stuDaysAbsent):
3  printStudentInfo("John", 3.6, 2)
   printStudentInfo("Ben", 3.2, 4)
4  printName(stuName)
   printGPA(stuGPA)
   printAttendance(stuDaysAbsent)
5  def printGPA(gpa):
6  print("Days absent: " + daysAbsent)
7  def printAttendance(daysAbsent):
8  print("GPA: " + gpa)
9  print("Name: " + name)
```

Things to consider:

1) What are the functions in this code?
2) What are the parameters?
3) What are the arguments?

We will go over the solution at the end of ten minutes. In the meantime, students can try the code themselves on the following site (at the bottom of the page).

Live Coding session:

How do we create a function that passes in two integers and determines the sum?

Solution:

```
def sum(num1, num2):
    sum = int(num1) + int(num2)
    print(num1, " + ", num2, " = ", sum)

sum(3,4)
```

Activity:

Students will work individually on the following prompt:

Create a program that passes in two integers through three functions that perform some one of the following math operations.

| Operator | Description | Example |
|---|---|---|
| + Addition | Adds values on either side of the operator. | a + b = 30 |
| - Subtraction | Subtracts right hand operand from left hand operand. | a – b = -10 |
| * Multiplication | Multiplies values on either side of the operator | a * b = 200 |
| / Division | Divides left hand operand by right hand operand | b / a = 2 |
| % Modulus | Divides left hand operand by right hand operand and returns remainder | b % a = 0 |
| ** Exponent | Performs exponential (power) calculation on operators | a**b =10 to the power 20 |
| // | Floor Division - The division of operands where the result is the quotient in which the digits after the decimal point are removed. But if one of the operands is negative, the result is floored, i.e., rounded away from zero (towards negative infinity) – | 9//2 = 4 and 9.0//2.0 = 4.0, -11//3 = -4, -11.0//3 = -4.0 |