Snooze++: Day Three!

Today's Schedule

9:00 – 11:45	• Functions Lesson
	• Complete Game Plan: Functions and Pointers
	  ○ Creating Functions
	  ○ Function Arguments
	  ○ Pass by Reference
	  ○ ** Optional: Pointers (only if time allows)
	• Read and Complete Worksheet Section I

11:45 – 1:00	• Lunch

1:00 – 2:30	• Classes and Objects Lesson
	• Read Game Plan: Classes and Objects
	  ○ Class Header Files
	  ○ Class Implementation
	  ○ Creating Objects
	• Read and Complete Worksheet Section II
	• Complete Game Plan: Pet Rocks
	  ○ Pet Rock Adventure
	  ○ Scrolling and Time
	  ○ Virtual Characters

2:30 – 3:30	• Outdoor Break

3:30 – 4:45	• Complete Game Plan: Pet Rocks
	  ○ Player Class
	  ○ Enemy Class
	  ○ Main File
	• Read and Complete Worksheet Section III
	• SFML Set Up (Ask me for help!)
	• Complete Game Plan: SFML
	  ○ Setting up SFML
	  ○ SFML Code
	  ○ Shapes
	  ○ ** Optional: Sprites
	  ○ ** Optional: Movement
	  ○ ** Optional: Animations
	  ○ ** Optional: Text
	  ○ ** Optional: Camera
	  ○ ** Optional: Menus

I. Functions

Practice using functions!

1. Write a function addFive() that adds 5 to an integer and returns the new integer.
2. Write a function repeat() that takes a given string input and prints it out 3 times.
3. Write a function isBig() that takes in an integer and returns true if it is greater than 100, and false otherwise.
4. **Bonus Challenge**: Write a function **string sillyWord(string word, int repeats, int k)** that will insert a word into itself a certain number of times after its **k**th letter:
    a. eg: sillyWord("apple", 0, 1) returns "apple"
       // repeated 0 times
    b. eg: sillyWord("apple", 1, 1) returns "a**apple**pple"
       // repeated 1 time, after 1st letter a
    c. eg: sillyWord("apple", 2, 1) returns "a**apple**applepple"
       // repeated 2 times, after 1st letter a
    d. eg: sillyWord("apple", 3, 1) returns "a**apple**appleapplepple"
    e. eg: sillyWord("apple", 1, 2) returns "ap**apple**ple"
       // repeated 1 time, after 2nd letter p
    f. eg: sillyWord("apple", 2, 2) returns "ap**apple**appleple"
    g. eg: sillyWord("juice", 2, 3) returns "jui**juice**juicejuicece"
       // repeated 2 times, after 3rd letter i
    h. eg: sillyWord("water", 1, 4) returns "wate**water**r"
       // repeated 1 time, after 4th letter e
5. **Bonus Challenge**: Write a function that takes any primitive input and prints it out. (*Hint: You will need to write the same function multiple times, but with different parameters.*)
6. **Bonus Challenge ★★HARD**: Write a function that solves a quadratic

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

equation.   (*Hint: this function should take in parameters a, b, and c. Because this function can return multiple values, what data structure should it return?*)

II. Classes and Objects

1. Create a class **Cat**
    a. Create and complete the cat's initializer:
       i.   **Cat(string name, int level) { }**
    b. Instance variables:
       i.   **name** of cat
       ii. **level** of cat
    c. Methods

      i.   **meow():** prints out meow, static
     ii.   **getName():** returns name of cat
   iii.   **getLevel():** returns level of cat
    iv.   **levelUp():** increases cat's level by 1

2. Cat Playground
   a. Create a level 5 cat called "Socks" in your main method
   b. Create a level 10 cat called "Lucky" in your main method
   c. Make the cats **meow**
   d. Print out the **levels** of both cats
   e. Make **Socks** level up

III. Final Project

1. Brainstorm at least **two** ideas you have for your final project due Friday. Examples include a **personality quiz**, a **text-adventure**, a **fighting-game**, Tic-Tac-Toe, **card games**, **Connect Four**, etc.
2. Check with me once you have your idea!

Congrats on finishing Day Three! See you tomorrow!