Scope, Modulo, & Function Practice

September 18, 2024

CS 105 • Fall 2024 • MSG Session

Exam 1: September 30 (Mon.)

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What do you feel strongest about for this exam?

What might you want to work on?

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How can I help you?

Let’s talk about *scope.*

Identifying Scope

```
// What is the scope of each variable?

int x = 0;

void setup() {

  int y = 1;

}

void draw() {

  int z = 2;

}
```

Variables with the same name?

```
// What will this program
// output?

int x = 0;

void setup() {

  int x = 2;
  println(x);

}
```

a). Error

b). 2

c). 0

Modulus time!

The modulo operator works a lot like a clock …

a). 1:00 pm + 3 hours =
b). 11:00 am + 2 hours =
c). 2:00 pm + 24 hours =

… or like grade school division

1 / 2 =

3 / 2 =

543 / 121 =

Let’s use what we’ve reviewed:

How can we make a ball wrap around the screen with the modulus operator?

It’s always good to practice some **functions**!

Suggestions for implementing functions

1. Function header
2. Ground truth table
3. Write test methods
    - Find good ***edge cases***
4. Implement method
5. Test & check

Practice implementing & testing functions

- **`circleArea`**: takes the radius of a circle and computes its area (πr^2)
- **`divide`**: takes in two numbers and divides them, returning the quotient.
  - Look out for **divide-by-zero error**!
- **`fahrenheitToCelsius`**: takes in a temperature in °F and converts it to °C.
  - Formula: $C = \frac{5}{9}(F - 32)$

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