

# 15-110 Recitation Week 2

## Reminders

- Hw1 due Monday 1/30 at Noon!
- Check 1 grades are out! The revision deadline is 2/07
  - Make sure to look at any feedback you got on gradescope!
- For recitation today:
  - There is a starter code file on the website – use that to get some practice running code!
- Recitation feedback [form](#)

## Overview

- Programing basics
- Binary practice, ASCII, RGB
- Functions, arguments, returned value, side effects
- Graphics practice, tkinter

# Problems

## PROGRAMMING BASICS

1. What is the result of “15” + 110?
  - a. How do we solve this error?
2. What is the result of 10 == "10"?
3. What is the correct way to output “Hello World” from the editor?
4. What is the difference between == and =?

5. What would happen if we tried to execute the following code? How would you fix it?

```
1 x = 5
2 print("Hello, your number is", x)
```

## **BINARY PRACTICE**

### **Conversion Practice:**

Convert 38 to binary using 8 bits

Convert 101 to binary using 8 bits.

What is 01110111 in decimal?

What is 11010010 in decimal?

What is the next binary number after 0011?

### **ASCII/RGB Conversion Practice:**

What ASCII character corresponds to the decimal value 64?

Convert 1010101 to ASCII.

For a certain color, the RGB value represented as a binary string is: 00101101 01110101 11100111.  
Convert this to a decimal value for the R, G, and B values of the color.

# FUNCTION PRACTICE

## Parts of a Function Call:

## Libraries Practice + Function Cheat Sheet

### Function Examples

Built-in Functions:

- **abs(a)**: takes the absolute value of a
- **pow(a, b)** : raises a to the power of b
- **round(a, b)**: rounds a to b number of significant digits

Random Library

- **random.randint(a, b)**: randomly chooses an integer on the **closed** interval [a, b] (a and b are included!)
- **random.random()**: picks a random float between [0, 1) (1 is excluded!)

Math Library

- **math.ceil(a)**: takes a number and returns the next highest integer
- **math.log(a, b)**: takes the log of a with base b
- **math.radians(a)**: converts degrees to radians

### Built-in Functions, Return Values, and Side Effect Practice

For each of the following function calls, what is the return value and side effect, if any?

Function Call	Returned Value	Side Effect?
abs(-1)	1	No side effect
input("Pick a number")		
print(float(4))		
print("None")		

<code>type("110 rocks!")</code>		
<code>math.log(16,2)</code>		

## **GRAPHICS PRACTICE**

### **Tkinter Review**

Follow along with your TA to draw a robot!

### **Practice**

We'd like you to take the remainder of recitation to practice using tkinter. You can draw anything you'd like but here are a few ideas in case you need some inspiration:

- house, self portrait, your favorite food

Please ask your TA's if you have any questions or are having any issues with this on your computer.