

15-110 recitation 05

Recap:

- converting between decimal and binary
- using binary data to represent numbers, pixels, letters & code
- circuits and gates
- print v. return & error types
- calling functions, if statements
- string slicing, string operations
- for loops, while loops

Reminders!

Exam 1 Tomorrow!

HW 3 Check-in (super small, shouldn't take more than an hour) due
Monday @ Noon!

Problems

decimal & binary

Learning Objectives

-binary/decimal

Problem

Convert the decimal value +84 to 8-bit binary
Recall that 'A' is 65, '0' is 48 in ASCII
Encode the string 'C0' in ASCII.

xnor

Learning Objectives

-generate truth table from an expression
-generate circuit from an expression

Consider xnor, the opposite of xor. xnor is true when *both* x and y are true OR neither x nor y are true.

1. Write a boolean expression for this
2. Create a truth table for xnor
3. Create a logical circuit for xnor

code trace 1

Learning Objectives

- Trace simple code

Problem

```
def f(n):  
    return n+5  
def g(n):  
    return 10*f(n) + f(n+2)
```

```
print(g(2)) ->
```

errors

Learning Objectives

-remember types of errors

Problem

```
print("Uh oh!")  
print(1/0)
```

Say we have this snippet of code to find the average of x and y:

```
x = float(x)  
y = float(y)  
z = x+y/2
```

What will this return? Is there an error?

port authority

Learning Objectives

- remember how to use mod, ceiling logic
- write functions

Problem

From 8am - 10am and 5pm - 7pm everyday, the 61A, 61B, 61C, and 61D are excessively crowded. Usually by the time they arrive at Forbes and Morewood, they can only fit 10 people on any given bus. However, when it isn't these hours, up to 30 people can fit on the buses.

Help Port Authority be less frustrating and allocate the right number of buses by writing a function **PortAuthority(time, num_people)** that given the time and number of people, returns the number of buses needed to accommodate everyone. Times will be stored in military time for your convenience.

```
PortAuthority(4, 20)->1  
PortAuthority(9, 43)-> 5  
PortAuthroity(18, 34)->4
```

code trace loops

Learning Objectives

-trace a for loop algorithm w/ strings

Problem

```
def ct1(s):  
    t = ''  
    for c in s:  
        if ((c.isdigit() == True) and (int(c)%2 == 1)):  
            t += c  
    return t  
print(ct1('I had 253 dogs and 762 cats!'))
```

strings

Learning Objectives

-string functions review

Problem

Print every other character in a string in function everyOther(s). If there are uppercase letters, make them lowercase.

Now, only print the letters in a string that are lowercase.