

# CS 150: Midterm Review

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April 9<sup>th</sup> 2014

# Talk Announcement

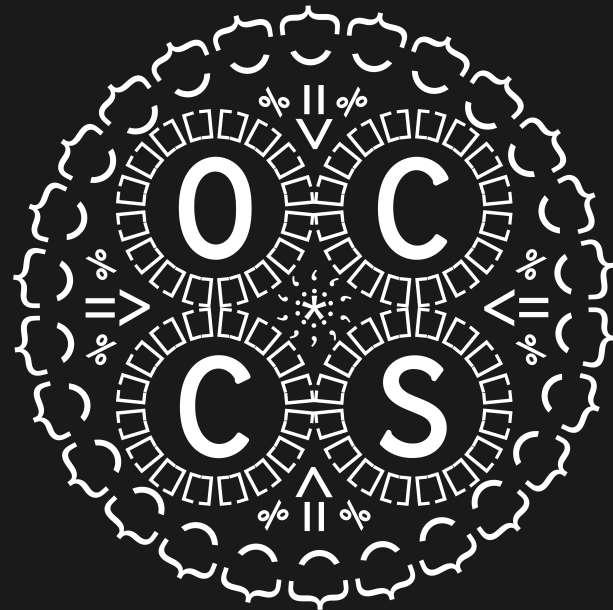
- Beenish Chaudry, Indiana University
- “Putting Healthcare Into Your Hands”
- Friday, April 11<sup>th</sup>, King 235 at Noon
- Refreshments 11:30 am King 223

# TONIGHT: Learn how to program on your laptop

- Upstairs lab, 7:30 – 9pm
- Both Mac and Windows

# T-shirts!

- Want a sweet CS major t-shirt?
- \$11, sign up in CS office by April 15th



# Women in Math and CS Weekly Meeting

- Tonight! (and every Wednesday)
- King 203, 6:45 – 7:45
- Open to all students identifying as women, regardless of major

# Test 2

- Friday!
- If you need accommodations, you need to tell me by the end of today

$1001_2$  in decimal is

- A. 6
- B. 9
- C. 10
- D. 18
- E. I don't know

# 53 in binary is

A. 10101

B. 110101

C. 110100

D. 1101010

E. I don't know

1	1	1
3	1	1
6	0	0
13	1	1
26	0	0
53	1	1



# What will the output of this code be?

```
A = [1,2,3]  
B = A + [4]  
C = A.append(5)  
print(A, B, C)
```

- A. [1,2,3] [1,2,3,4] [1 2 3 5]
- B. [1 2 3 4 5] [1 2 3 4 5] [1 2 3 4 5]
- C. [1 2 3 5] [1 2 3 4] [1 2 3 5]
- D. [1 2 3 5] [1 2 3 4] None
- E. I don't know

$$A \text{ AND } (B \text{ OR } C) = (A \text{ AND } C) \text{ OR } (A \text{ AND } B)$$

A. True

B. False

C. I don't know

$$A \text{ AND } (B \text{ OR } C) = (A \text{ AND } C) \text{ OR } (A \text{ AND } B)$$

A	B	C	LHS	RHS
1	1	1		
1	1	0		
1	0	1		
1	0	0		
0	1	1		
0	1	0		
0	0	1		
0	0	0		

$$\text{NOT (A OR B) = (NOT A) AND (NOT B)}$$

A. True

B. False

C. I don't know

$$\text{NOT } (A \text{ OR } B) = (\text{NOT } A) \text{ AND } (\text{NOT } B)$$

A	B	LHS	RHS
1	1	0	0
1	0	0	0
0	1	0	0
0	0	1	1

Write a Python function called `min(A)` which takes in a list `A`, and returns the smallest element in that list. (Do not use the built in `min` list function.) You can not assume the list elements are any particular type, but you can assume that `<`, `<=`, `==`, `!=`, `=>`, `>` work.

What will the output & return value of  
this code be?

```
def A(x) :  
    print(x)  
    if (x == 0) :  
        return 1  
    else :  
        r = x//2  
        return 1 + A(r)
```

A(5)

A. 5 2 1 0, 5

B. 5 2 1 0, 4

C. 5 2 1, 4

D. 5 2 1, 3

E. I don't know

Write a function `sum(A)` that takes a list of integers and **RECURSIVELY** adds together all the integers, returning a single integer value.



- Suppose you want to create a class called **Pirate** to represent pirates. Each instance of Pirates should include fields to store the given pirate's **name**, how many gold **doubloons** he has, and a boolean value indicating whether or not he has a **pegleg**. The Pirate class should also keep track of how many pirates have been created.
- Write a class definition for Pirate, with a constructor that takes in the name of the pirate, and if he has a peg leg. The constructor should also have an argument doubloons, with a default value of 0.

Write a function called **rob** that takes in another pirate **p** and takes away the doubloons belonging to p and gives them to the pirate calling the method.

Write a client program to do the following:  
Create a pirate named “Pegleg Pete” who has a  
peg leg and 0 doubloons, and a pirate named  
“Hookhand Harry” who does not have a peg leg,  
and has 50 doubloons. Have Pegleg Pete rob  
Hookhand Harry.

Define a subclass of Pirate called Captain that includes the name of the pirate's ship, the ship's maximum speed, and a boolean value indicating if the ship has sunk. The class Captain should override its parent's constructor. The new constructor should take in the pirate's name, peg leg status, ship's name, maximum speed of ship, and optional number of doubloons. The constructor should first call the constructor for Pirate, but then add new fields to add the ship's name, speed, and sunkenness.

- Define a new Pirate function called attack that takes in another Captain seadog and sinks his ship.

# Next Class

- Friday – Test 2