

# CS 150: Sorting Algorithms

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April 18<sup>th</sup> 2014

# Announcements

- Bravest Warriors marathon on Saturday from 7-9pm in the downstairs lab with popcorn.
- Everyone should come, majors and non-majors!



- Still looking for people to submit art/creative things of any kind
- Anyone who'd like to submit or might like to submit should email Krista LaFentres [klafentr@oberlin.edu](mailto:klafentr@oberlin.edu).
- Don't need to be a major, work doesn't need to involve CS at all.

# Lab

- Getting a weird `critter_main` error before you add any critters
- in folder, type `ls -a`
  - should see a bunch of files starting with `._`
- type `rm ._*`
  - this will delete them

Lion - look adjacent

main - list of critters  
every turn <sup>calls</sup> get move()  
every critter

# Want to have 3 different stats, evenly distributed between my critters

num\_critters = 0  
....

A

```
def getStats(self):  
    CynthiaT.num_critters += 1  
    if CynthiaT.num_critters%3 == 0:  
        return 90,10  
    elif CynthiaT.num_critters%3 == 1:  
        return 50,50  
    else:  
        return 10,90
```

B

```
def __init__(self):  
    self.num_critters = 0  
    ....  
  
def getStats(self):  
    self.num_critters += 1  
    if self.num_critters%3 == 0:  
        return 90,10  
    elif self.num_critters%3 == 1:  
        return 50,50  
    else:  
        return 10,90
```

C

```
def getStats(self):  
    num_critters = 0  
    num_critters += 1  
    if num_critters%3 == 0:  
        return 90,10  
    elif num_critters%3 == 1:  
        return 50,50  
    else:  
        return 10,90
```

D. Something else

E. I don't know

If one of our critters sees a Point Cache, we want all our critters to go to it

- How can we do that?

critter seeing - Share  $x, y$   
Compute PC  $x, y$

List of Point Caches - global

getMove

# First: Fix Insertion Sort



# Bubble Sort

- Bubble sort divides the list into an unsorted part (initially the whole list) and a sorted part (initially empty)
- Unlike selection and insertion, our bubble sort has the sorted part at the right (not the left)
- Then, while our sorted part is not the whole list
  - Scan the unsorted part from left to right
  - When an element is larger than the one to its right, swap them

# Bubble Sort

- List: 8 10 3 5 1

- After 1 pass:

8 3 5 1 10

- 2 passes:

3 5 1 8 10

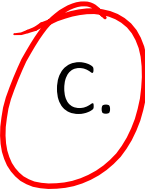
- 3 passes:

3 1 5 8 10

- 4 passes:

1 3 5 8 10

# Which of the following is true of bubble sort?

- A. Once a value is placed in the sorted part, it will never move again
- B. There is never a value in the sorted part that is smaller than some value in the unsorted part
-  C. Both of the above are true
- D. None of the above is true


[5, 9, 0, 4, 6, 8, 2]

What will be the list after one pass of bubble sort?

A. [5,0,9,6,4,2,8]

B. [5,9,0,4,6,2,8]

C. [5,0,9,4,6,8,2]

 D. [5,0,4,6,8,2,9]

E. I don't know

# Write Code for Bubble Sort

# Next Time

- MergeSort
  - 5.1-5.2
- Lab 9 – Tuesday at 10 pm