# Computational Structures in Data Science

## Wrap Up

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# Announcements

- Final Exam Next Week
- Seating assignments out this week (we'll be in 2-3 rooms)
- Remember to wrap up assignments
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# Final Exam Information

- Time: Tues 11:30 AM -2:30 PM
  - We'll be split in 3 rooms; emails to be sent later week
  - Confirmations on accommodations, alt times sent soon.
- Similar to Midterm!
  - Fall 2022 was done on Gradescope, but is very different. Topically good practice.
- Clobber Policy:
  - If you improve upon your midterm score, your midterm score goes up
- Everything in class is in scope, but focus on post-midterm topics.

# Is Your Brain Full Yet?

- Data: values, literals, operations,
- Functions
- Variables
- List, Tuples, Dictionaries
- Function Definition Statement
- Conditional Statement
- Iteration: list comp, for, while
- Lambda function expr.
- Higher Order Functions
- Higher order function patterns
  - Map, Filter, Reduce
- Recursion
- Abstract Data Types
- Mutation
- **Class & Inheritance**
- **Exceptions**
- **Iterators & Generators**
- **SQL / Declarative Programming**

# Grading Updates

- http://howamidoing.c88c.org/
  - We will periodically update over the next weeks.
  - Sum everything up!
- Lecture Self-Checks
  - Basically everyone *should* 20/20 on the lecture self-checks. That's the point. ☺
  - Correctness *does* count! **Resubmit open ones, if you haven't gotten them right.** (No late penalty!) Lateness does not matter
  - There are 27 self-checks which means you could have skipped 6 lectures
  - There's a few "bonus" ones on Gradescope, just from different semesters that are optional practice, but can get you to 20 pts if you need.

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# CONGRATULATIONS!!

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## Final Review

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Michael Ball | UC Berkeley | https://c88c.org | 

# Approaching The Exam

- Skim the topics (~1 min)
- Handle the "easy"(est) questions first
- **Read the whole question first!**
- **Read the text**
- **Read the doctests!**
- What techniques might be applicable?
  - Pattern matching is OK
- Draft a solution on scratch paper!
- Write yourself notes

# Spring 2022 – Question 5 - cascade

5. (6.0 points) Cascading Numbers

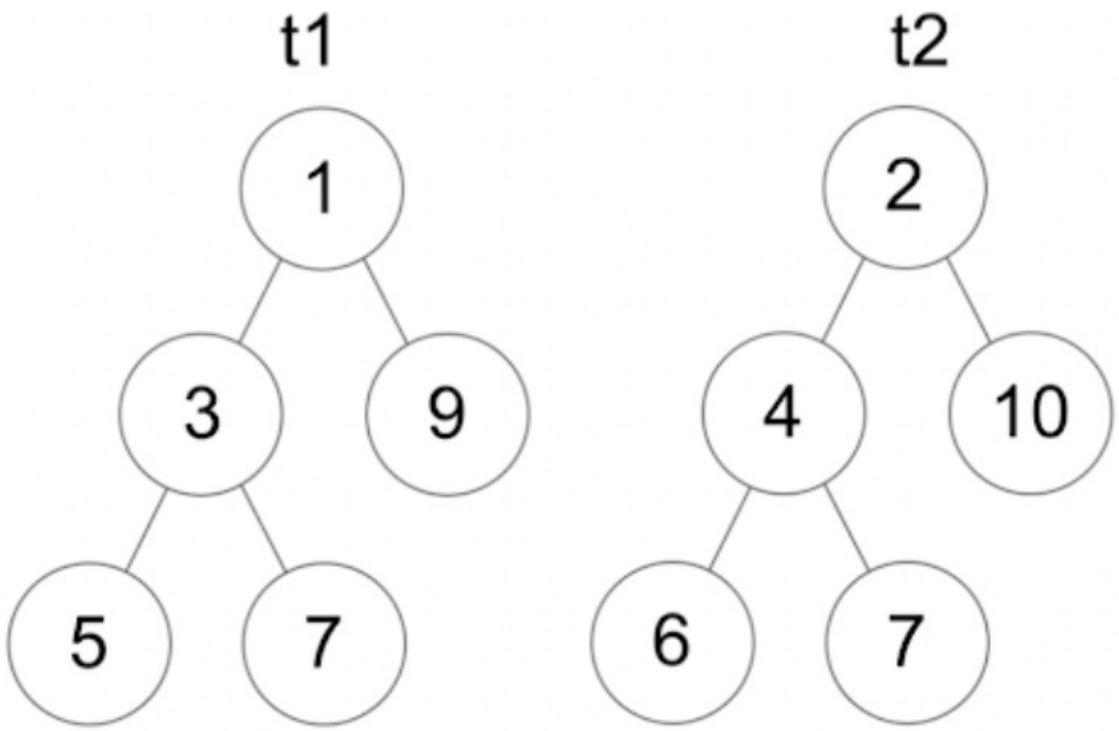
Complete the function cascade, which takes in an integer base, a function fn, and a non-negative integer count. cascade returns a sequence of numbers starting with base, fn(base), fn(fn(base)), . . . and so on, count number of times and then continues the sequence in reverse back to base.

```
if count == 0:
    return _______________________________
elif count == 1:
     return _______________________________
else:
    middle = cascade(_____________________________)
    return _______________________________
```

# Fall 2021 Q9 – Tree Farm

**9. (12.0 points) Tree Farm**

You've decided to get into the tree growing business! All the trees you grow have the same structure as each other but may have different values. You want to detect the nodes that are in the same position in two given trees but have different values. Write a function that takes in two trees, `t1` and `t2`, with the same structure and yields the mismatching node values as a tuple.



# THANK YOU!

# COME JOIN COURSE STAFF!

# Keep on Programming

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THANK YOU!

(Again!)

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