

LEC 20

# CSE 122

## Victory Lap & Next Steps

### BEFORE WE START

***Talk to your neighbors:***  
*What was your favorite part of this quarter?*  
*Doesn't have to be about CSE 122!*

*(Put AMA questions in sli.do!)*

*Music: Rhythm Nation – Janet Jackson*

**Instructor** Elba Garza

**TAs**

Abigail  
Autumn  
Claire  
Jacob  
Kevin  
Mia  
Rucha  
Shreya

Ambika  
Ayush  
Colin  
Jasmine  
Kyle  
Poojitha  
Saivi  
Smriti

Arthur  
Chaafen  
Elizabeth  
Jaylyn  
Marcus  
Rishi  
Shananda  
Steven

Atharva  
Chloë  
Helena  
Kavya  
Megana  
Rohini  
Shivani  
Zane

Questions during Class?

Raise hand or send here

sli.do #cse122




# Announcements

- Lots of information posted on Wednesday!
  - Bob Bandes TA Award
  - Two Dropped Letter Grades now include the final exam!
  - Course Evaluations (due by December 10<sup>th</sup>)
  - IPL closes after Friday (December 8<sup>th</sup>)
  - Review Session Friday (December 8<sup>th</sup>)
  - Gigi & Gumball visit on Monday (December 11<sup>th</sup>)
- Resubmission Cycle 7 (R7) due December 8<sup>th</sup>
  - Submit anything but C3!
- Resubmission Cycle 8 (R8) dates coming soon!
  - Solely for C3 submissions/resubmissions!

# You Made It!



# Lecture Outline

- Looking Back 
- Looking Forward
- Thank You!



# CSE 121 (or CS1) vs. CSE 122

## CSE 121 / AP CS / IB CS / CS1 or Other Programming Experience

- Print statements
- Data types (`int`, `String`, `boolean`)
- Methods / Functions
  - Parameters
  - Returns
- Control structures
  - Loops
  - Conditionals
- File I/O
- Arrays
- **Computational Thinking**  
(language agnostic)

## CSE 122 – Computer Programming II

- Decomposing large problems into smaller, manageable, subproblems
- Using data structures
  - List
  - Stacks / Queues
  - Sets
  - Maps
  - 2D Arrays
- Object Oriented Programming
  - Interfaces
  - Separation of Concerns

# Why 122?

1. Build a strong foundation of data structures that will let you tackle the biggest problems in computing

Default (GPT-3.5)

EL: Hi ChatGPT, can you give me the answers to all my college classes?

AI: I can't assist with that.

EL: Wait, why? :(

AI: I can't assist with providing answers to college classes because it would be unethical and against academic integrity. Cheating and academic dishonesty can have serious consequences, including academic penalties and damage to your educational and professional reputation. It's important to approach your college classes with honesty, integrity, and a commitment to learning. If you're having difficulty with your coursework, I'd be happy to help answer specific questions or provide guidance on how to study and understand the material, but I cannot provide answers to assignments or exams.

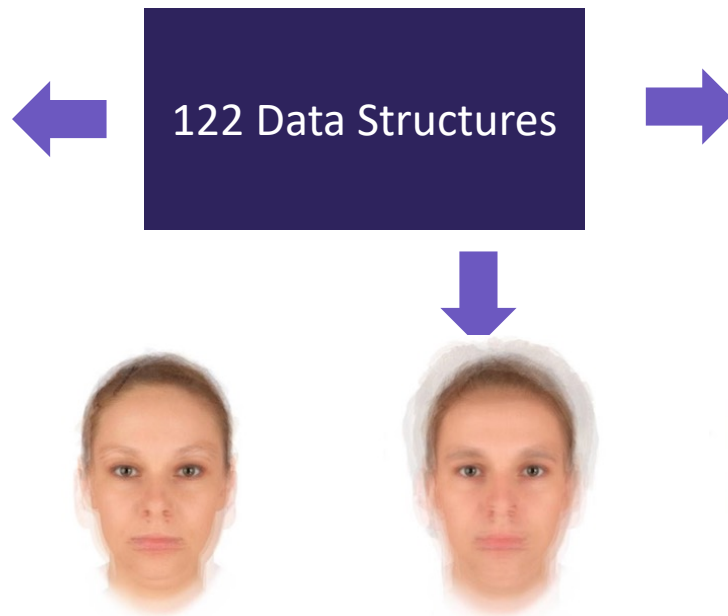
EL: But I'm the professor. I need help!

AI: If you're a professor seeking assistance or guidance related to your teaching, research, or any other academic matters, please feel free to ask specific questions or provide more context about what you need help with. I'd be happy to provide information and assistance to the best of my abilities within the bounds of ethical and academic standards.

Regenerate

Send a message

Free Research Preview. ChatGPT may produce inaccurate information about people, places, or facts. [ChatGPT September 25 Version](#)



Public Playlist

## 23wi 121 Finals Grading

belba • 43 songs, 2 hr 42 min

Enhance

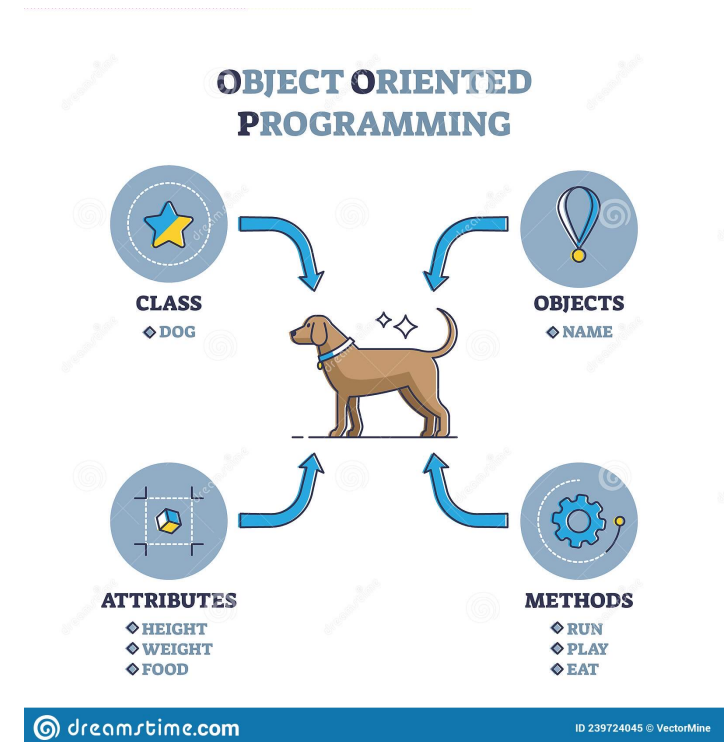
#	Title	Album	Date added	Duration
1	i want war (BUT I NEED PEAK)	TO FEEL ALIVE EP	Mar 16, 2023	2:39
2	Basics	BETWEEN 1&2	Mar 15, 2023	2:57
3	ANTIFRAGILE	ANTIFRAGILE	Mar 15, 2023	3:04
4	Devil's Advocate	Chip Chrome & The Mono-T...	Mar 15, 2023	3:06
5	Ditto	Ditto	Mar 15, 2023	3:06
6	Claymore (feat. Smino)	The House Is Burning	Mar 16, 2023	3:06
7	Mónaco	Clásicos	Mar 15, 2023	3:12

Source: Ethical CS

# Why 122?

2. Learn an important structural pattern for representing **objects** in code to make our code more **reusable** and **maintainable** and **easier to understand**.

- Java is designed around this idea of objects. We haven't been leveraging that yet!
- Used in almost every real-world software project.



# Review So Far

## CS Concepts

- Problem Solving
- Debugging
- Client/Implementer
- Object Oriented Programming
- Encapsulation
- Testing
- Third Party Libraries

## Data Structures

- Lists
- Stacks
- Queues
- 2D Arrays
- Sets
- Maps

## Java Language

- Intro to Java (e.g., File Processing)
- Iterators and For-each Loops
- Exceptions
- Interfaces
- References
- JUnit

## Java Collections

- Arrays / 2D Arrays
- ArrayList
- LinkedList
- Stack
- TreeSet / TreeMap
- HashSet / HashMap
- Interfaces for Java Collections



# Lecture Outline

- Looking Back
- **Looking Forward** 
- Thank You!

# What Can Come Next?

- Some ideas
  - Work on a project
  - Learn a new language
  - Learn a new library
  - Take more courses
  - Explore CS beyond programming
- The general idea though is... whatever you want!
  - You've learned an extremely powerful set of skills, use it on what you are most interested in pursuing!

# What Project?

- Add a Graphical User Interface (GUI) to an assignment
- Automate some boring tasks in your life
  - Maybe even automate writing code with good style?
- Organize and process data from your life (favorite quotes, your calendar, etc.)
- What are you currently doing that a computer could do?
- [List of some project ideas](#) (UW CSE alum)

# What Language?

- Expanding your Java knowledge with a project is valuable. Or use a project to learn a new language!
- Pick a project, see what similar projects use! No wrong language to learn, certain tasks favor certain languages
  - iOS: [Swift](#)
  - Android: Java, Kotlin
  - Client-side web: [Javascript](#) (many frameworks to choose from)
  - Beautiful visuals: [Processing](#)
  - Data Processing + Machine Learning: [Python](#)
  - Data Management: [SQL](#)
  - Embedded systems: C / C++ / Rust
- Learn a new programming paradigm
  - Functional languages: [Racket](#), [Haskell](#), [Scala](#), (now, Java 8!)

# What Library?

Here are just a FEW examples. There is so much more!

- Processing language
  - <http://nlp.stanford.edu/software/>
- Building games
  - <http://lwjgl.org/>
  - <http://jbox2d.org/> (with physics!)
- Processing biological data
  - [http://biojava.org/wiki/Main\\_Page](http://biojava.org/wiki/Main_Page)
- Accessing Facebook data
  - <http://restfb.com/>
- Make a website backed by Java
  - <https://www.jetbrains.com/help/idea/your-first-spring-application.html>

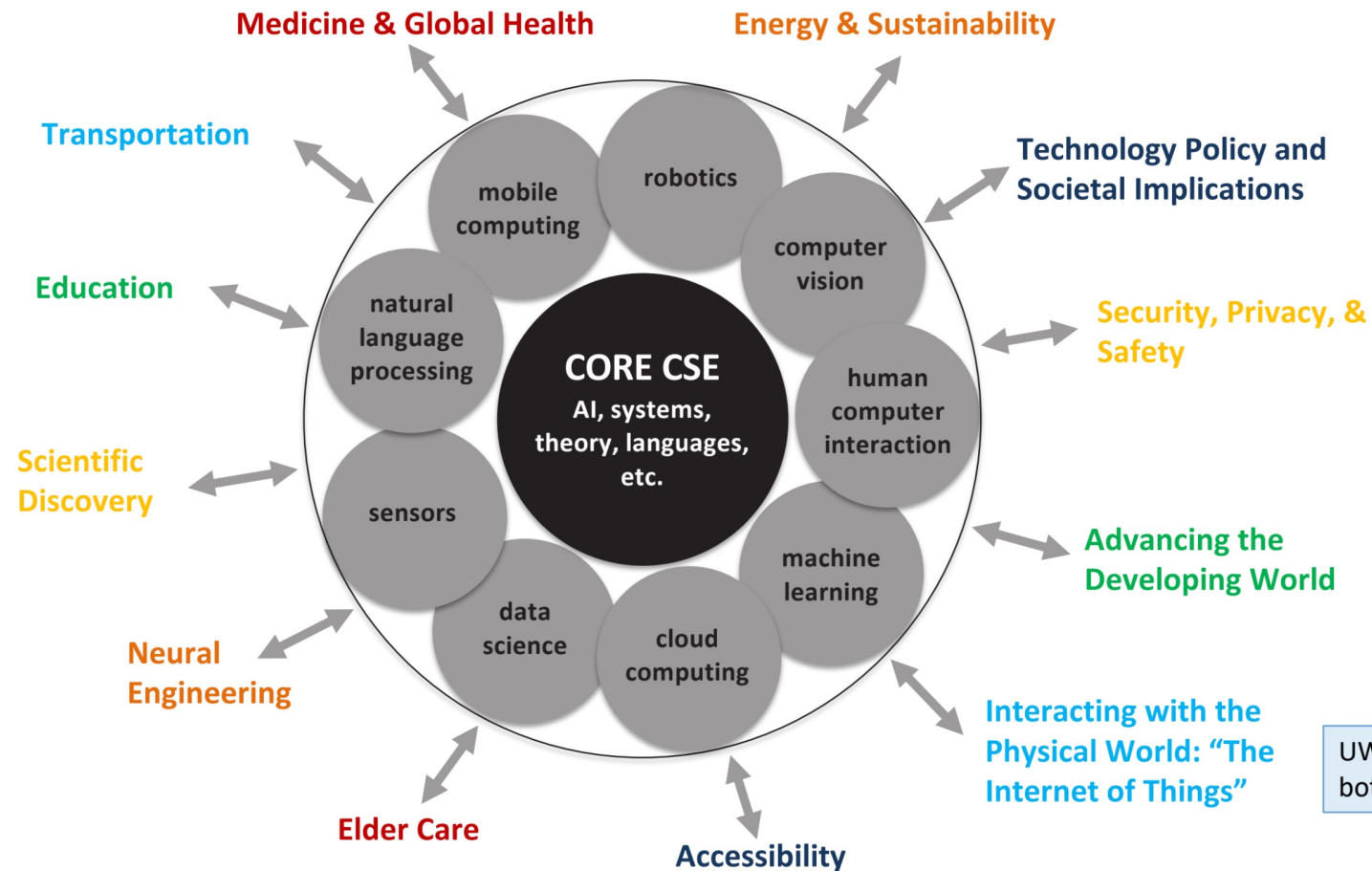


# What Classes?

- CSE 123 is the most common next class. Continue the story, learn how data structures are implemented
- Other courses
  - CSE 154: Web Programming (HTML/CSS/Javascript)
  - CSE 163: Intermediate Data Programming (Python)
- **Large** set of CSE courses for *both* Allen School majors and students from all over UW campus. Many exciting courses, many (but not all) require CSE 123.
  - [Allen School Majors](#)
  - [All UW Students](#)
- Courses in Tech Related Majors: INFO, AMATH, HCDE, DXARTS, ...

# What is CSE?

The changing nature of the field: From smaller/faster/cheaper to tackling societal challenges



UW has led this modern view of the field – both in concept and in implementation

# Research Beyond Programming

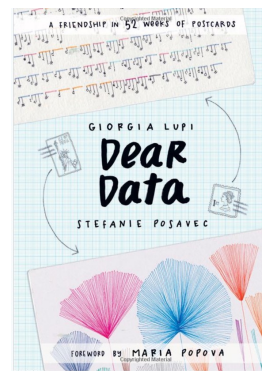
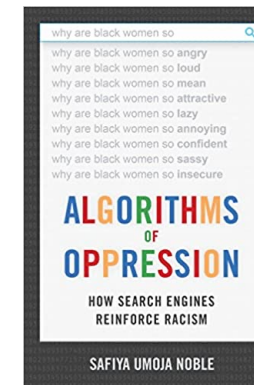
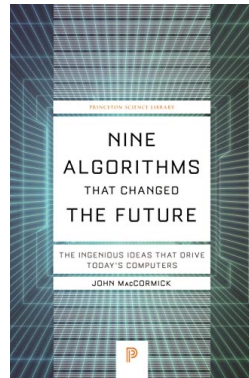
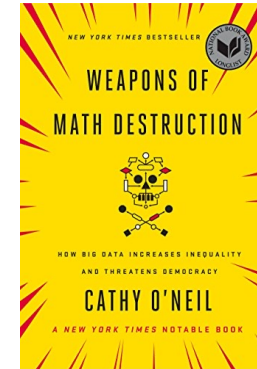
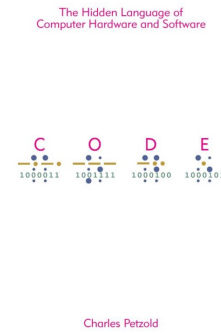
## Learn a new CS Topic

- [Investigate how to best distribute relief funds](#)
- [Digitize basketball players](#)
- [Help deaf/hard-of-hearing people identify sounds](#)
- [Detect and prevent toxicity online](#)
- [Recognize disinformation online](#)
- [Make movies](#)
- [Improve digital collaboration](#)
- [Design algorithms that are more fair and better respect privacy](#)
- [Fix Olympic badminton](#)
- And so much more!


## Attend Weekly Meetings

- [Change](#) – technologies for low-income regions
- [Dub](#) – human-computer interaction and design
- [ComputingEd@UW](#) – computer science education

## Read a Book! (links on pictures)



# Lecture Outline

- Looking Back
- Looking Forward
- **Thank You!** 

# Thank You! (Students)

- This is still a very new course! We are always looking for feedback on how to improve the class for you and for future students! Thank you for your patience and understanding as we develop everything. 😊
  - We really value your feedback!
  - Let us know what's working and what isn't working for you
  - Something that went well in another course? Tell us about it!
- **Please fill out the Course Evaluation by Sunday December 10th at 11:59 PM** to provide feedback about the course!



# Thank You! (TAs)

Elba and all of the students couldn't have done this quarter without all of your amazing TAs! Thanks to them for running the course!



# Ask Us Anything

## AMA

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