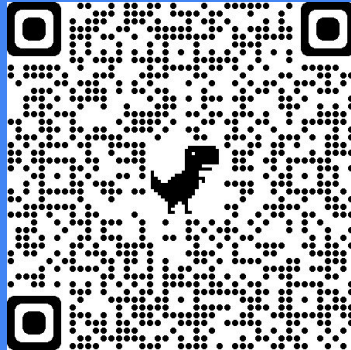


ACM-CSIP Summer 2021

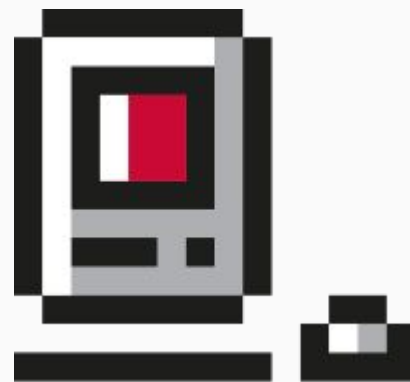
Meeting 6! Check-in pls: <https://forms.gle/S71mQeKxkALFrSFQ6>



Welcome!

- Itinerary

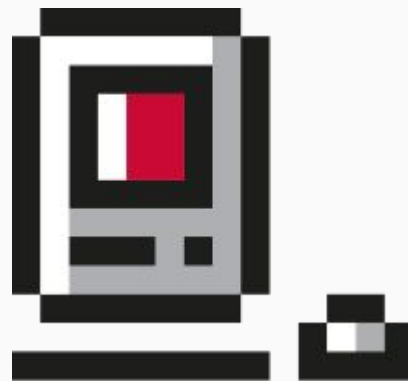
- Introduction
- Polls
- Logic Games
- Strategies
- Challenges
- Resources



Introduction

Introduction

- Computer Science Interview Prep (CSIP)
- Meeting Tuesdays @ 7PM, ACM Discord
- Focused on professional, personal, and technical development
- Will be focused on both behavioral and technical interviews



Meeting Platforms



GitHub

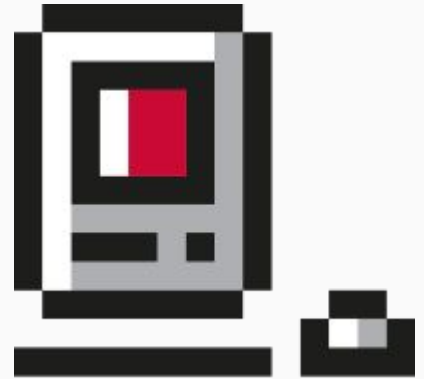
- github.com/csip-uga
- share your GitHub username to be added!



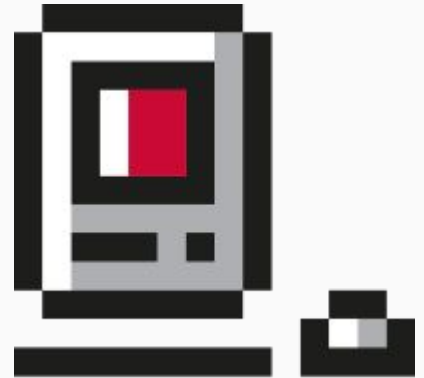
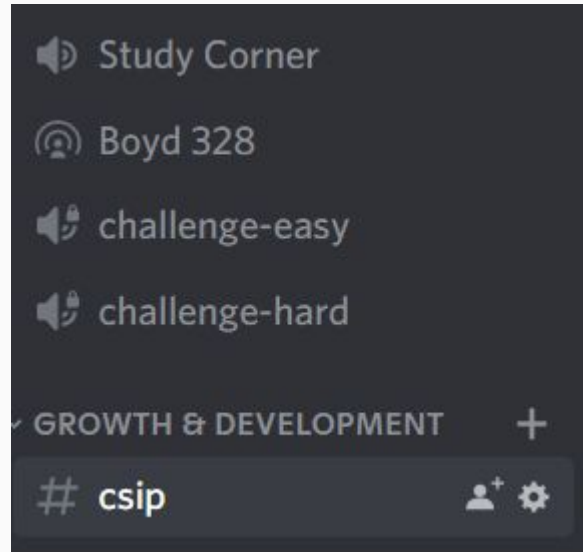
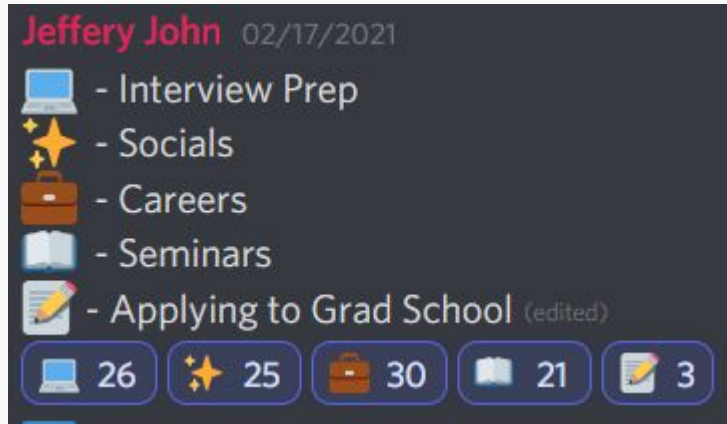
The image shows a GitHub profile page for 'CSIP @ UGA'. The profile picture is a pixelated icon of a computer monitor with a red square on the screen. The username 'CSIP @ UGA' is displayed in bold, followed by the bio 'Computer Science Interview Prep at the University of Georgia'. Below the bio, the location 'Athens, GA' and the website 'http://csip-uga.github.io' are listed. At the bottom, there is a navigation bar with links to 'Repositories' (3), 'Packages', 'People' (22), 'Teams', 'Projects', and 'Settings'.

CSIP @ UGA
Computer Science Interview Prep at the University of Georgia
Athens, GA <http://csip-uga.github.io>

Repositories 3 Packages People 22 Teams Projects Settings



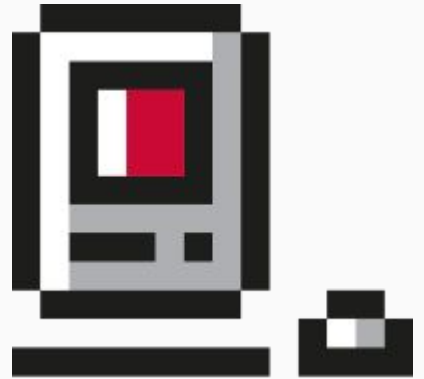
Discord



Polls

Polls

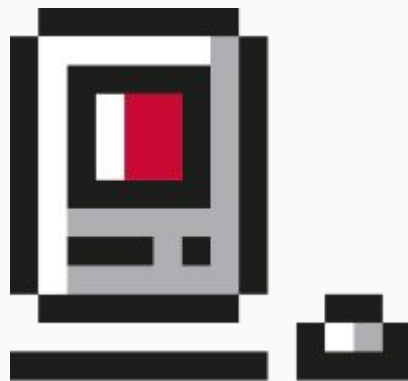
- See check-in form
- Would you rather fight a horse sized duck or a dozen duck sized horses?



Logic Games

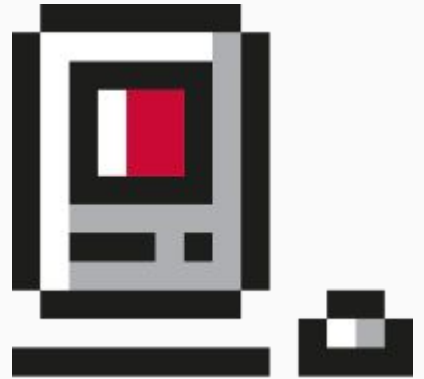
Logic Games

- Generally based on math concepts
- Types of logic
 - Prime numbers, divisibility
 - Probability
 - Riddles
 - Find an amount
 - Ordering, timing



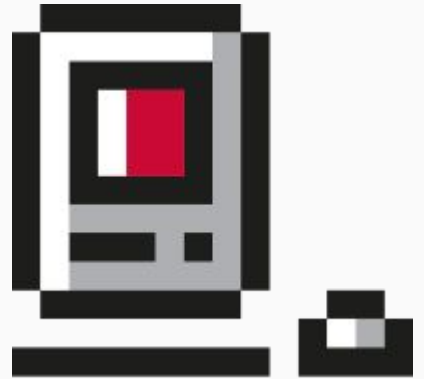
Prime Numbers

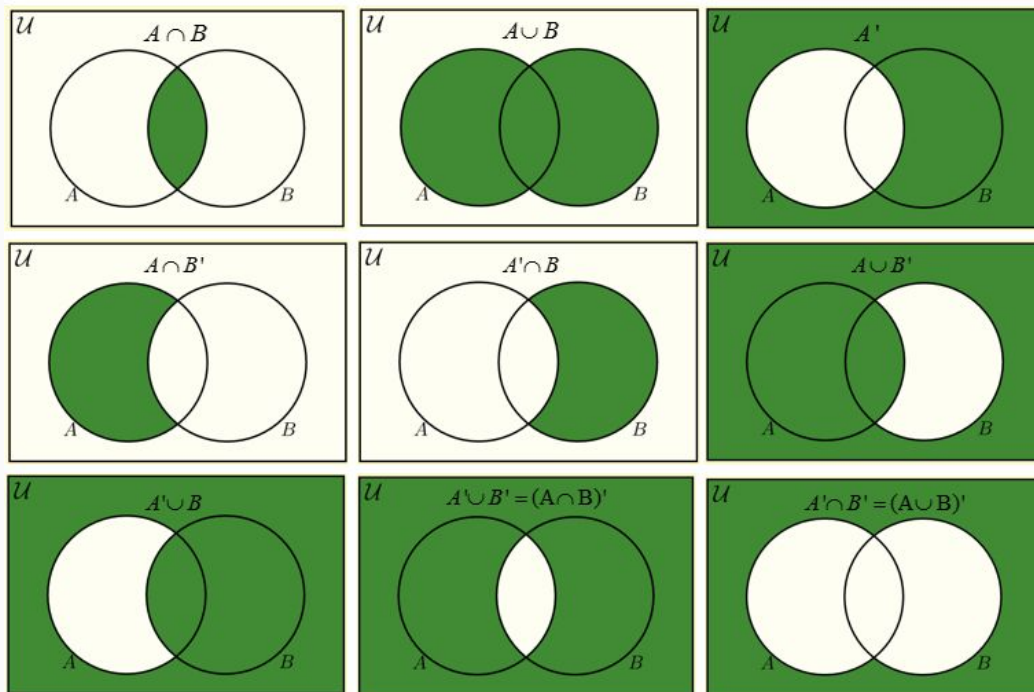
- Prime: Natural number > 1 that is only divisible by 1 and itself
- Semi-prime: Product of two prime numbers
- Even integers > 2 can be expressed as the sum of two primes
- Find Greatest Common Factors by comparing prime factorizations



Divisibility

- 2: all even numbers
- 3: numbers w/ digits that add up to 3
- 4: numbers w/ last 2 digits that are a multiple of 4
- 5: numbers w/ endings in 0 or 5
- 6: numbers w/ both 2 and 3 as factors
- 9: numbers w/ digits that add up to 9
- 10: numbers w/ endings in 0



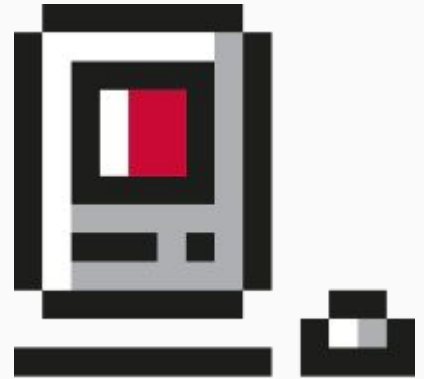


Probability

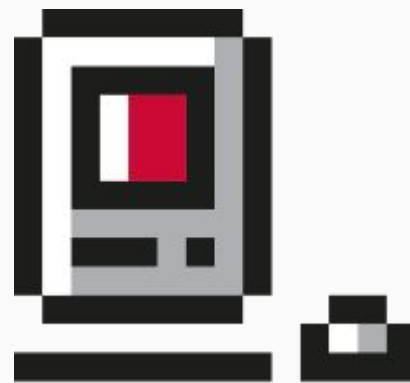
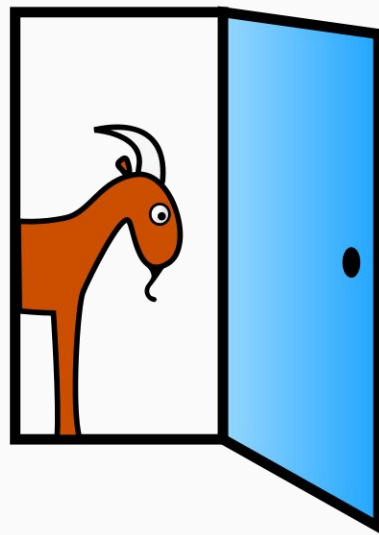
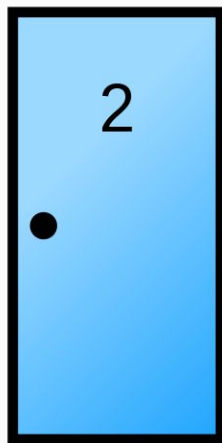
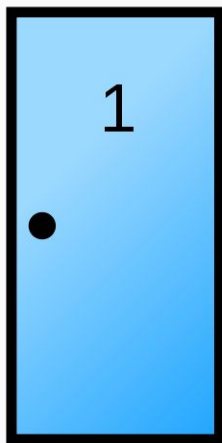
- Consider whether outcomes are independent
- Consider whether outcomes are mutually exclusive

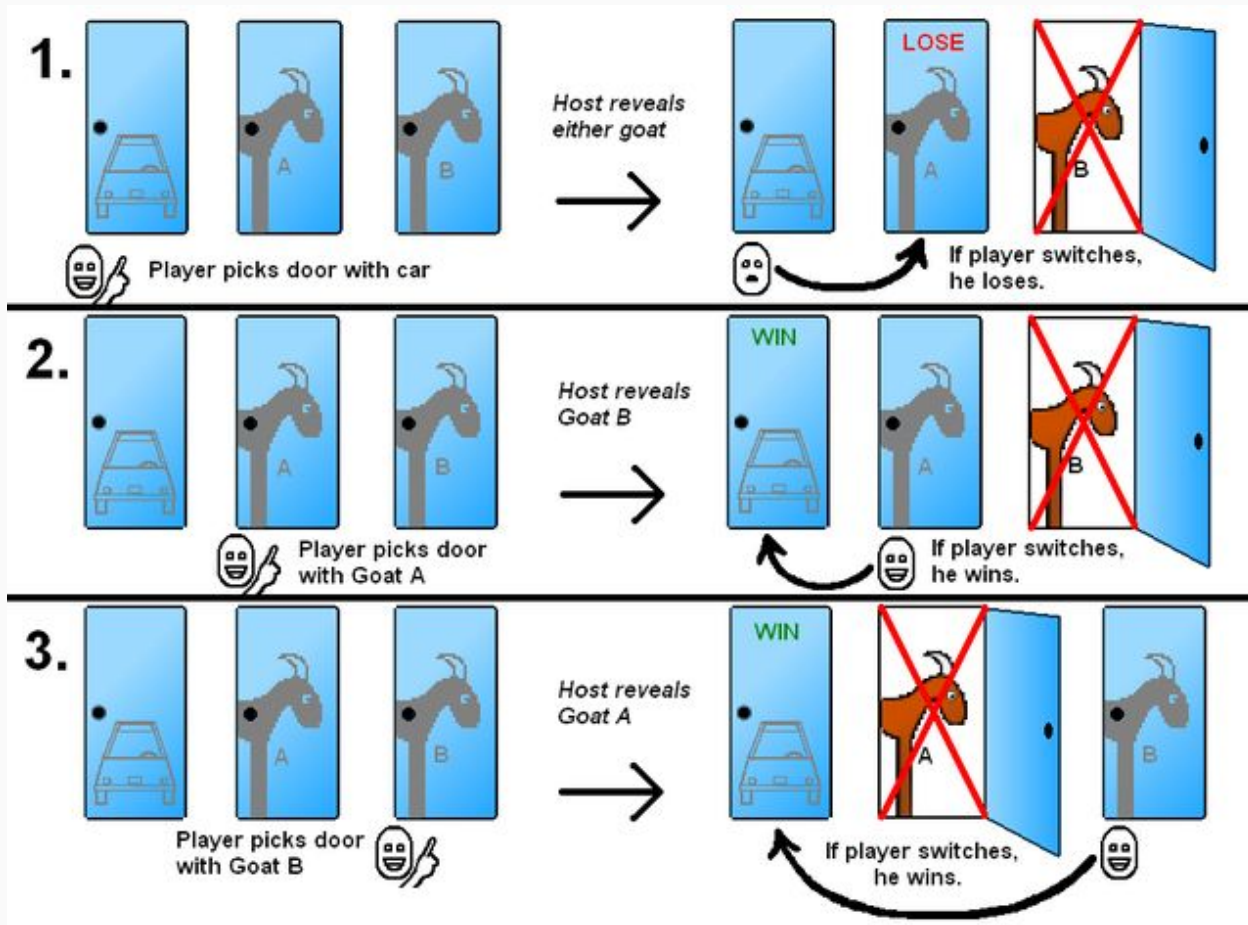
All Probability Formulas List in Maths

Probability Range	$0 \leq P(A) \leq 1$
Rule of Addition	$P(A \cup B) = P(A) + P(B) - P(A \cap B)$
Rule of Complementary Events	$P(A') + P(A) = 1$
Disjoint Events	$P(A \cap B) = 0$
Independent Events	$P(A \cap B) = P(A) \cdot P(B)$
Conditional Probability	$P(A B) = P(A \cap B) / P(B)$
Bayes Formula	$P(A B) = P(B A) \cdot P(A) / P(B)$



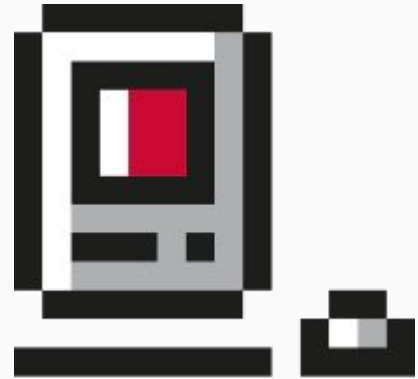
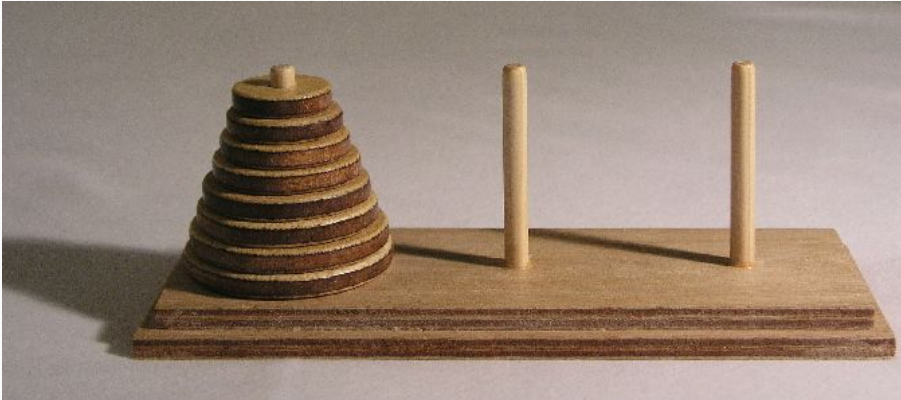
Monty Hall

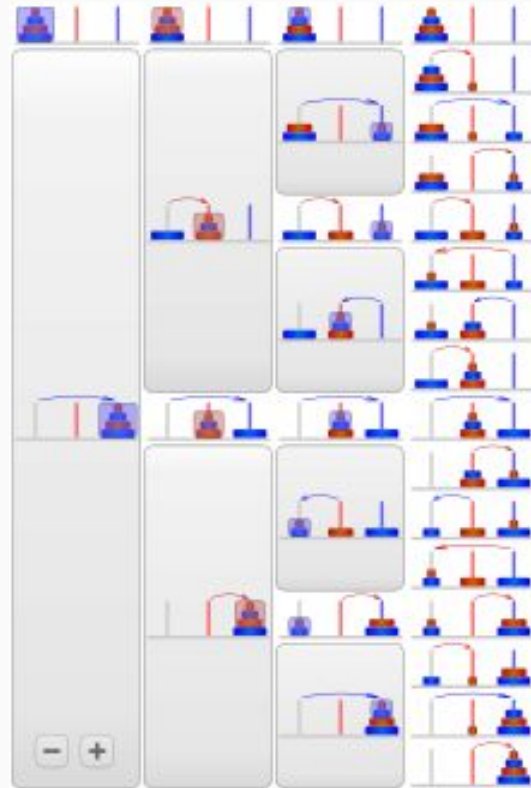
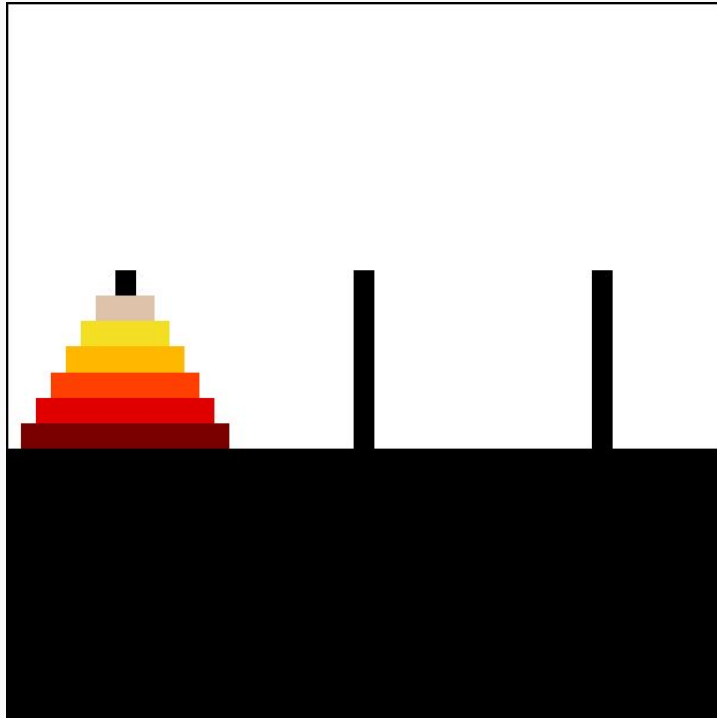




Tower of Hanoi

- Only one disk may be moved at a time
- Can only move the top disk of a given stack
- No disk may be placed on top of a disk that is smaller than it

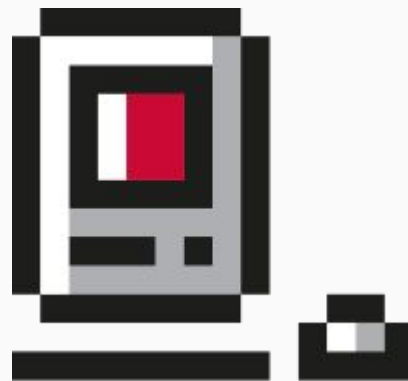




Strategies

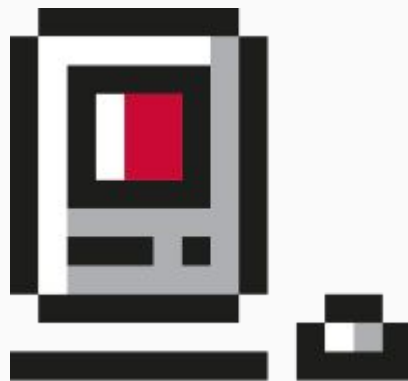
Strategy

- Your thought process matters even more!
- Create rules - assign variables and note their relationships
- Be careful with how you divide and conquer



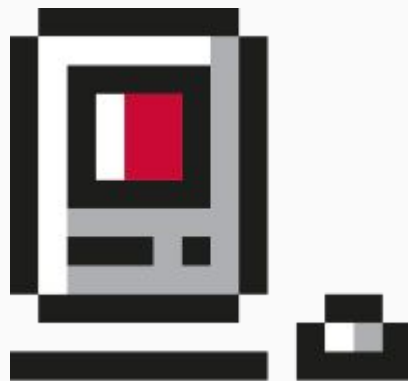
Burn a rope

- You have two ropes, each takes exactly 1 hour to burn, but not necessarily at a constant rate. Use them to time 15 minutes.
 - We can time $x + y$
 - We can time $z / 2$ by lighting a rope at both ends
 - We can time $(i - j)$ minutes
 - We can time $(i - j/2)$ minutes



Use a Scale

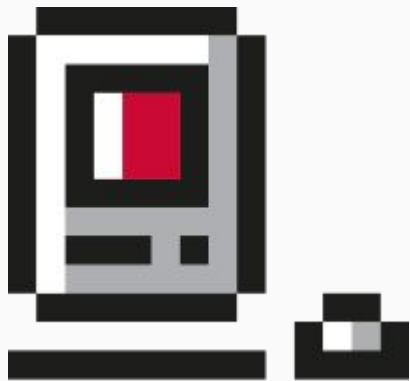
- You have 9 balls, with 8 having an equal weight. Find the heaviest with only two uses of a scale
 - We can weigh two 'groups' at a time
 - $x + x + x + x < x + x + x + y$
 - $x + x < x + y$
 - $x < y$
 - Weighing two groups of four does *not* work



Featured Challenges

See GitHub Archive!

- github.com/csip-uga/archive/tree/master/2021-07-20
- [Easy]: [Leetcode 292](#)
- [Medium]: [Leetcode 1561](#)



Conclusion

COMPUTER SCIENCE INTERVIEW PREP (CSIP)

Summer 2021

UGA ACM is proud to present Computer Science Interview Prep! CSIP provides a platform to practice for technical and behavioral interviews. Summer sessions will be hosted virtually, and resume in-person meetings in September. We hope to see you! All experience levels welcome.

6/15: Types of Interviews, Tools, & FizzBuzz

6/22: Whiteboarding & Design

6/29: Online Assessments & Debugging

7/6: Python & String Manipulation

7/13: Big O

7/20: Logic Puzzles

7/27: Scalability

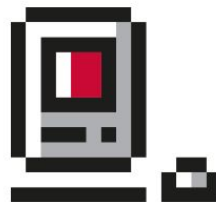
8/2: Elevator Pitch & Critique

8/19: ACM General Body Meeting #1

8/25: Fall Career & Internship Fair

Tuesdays @ 7PM on the ACM Discord!

Scan the QR code, create an account, and join us in #csip and the Study Corner Voice channel



github.com/csip-uga

Questions?

- Find ACM on:
 - [CS GroupMe](#)
 - [GitHub](#)
 - [LinkedIn](#)
 - [Instagram](#)
 - [Discord](#)
 - [Calendar](#)
- Feel free to message me!
 - jeffery.john@uga.edu | ugaacm@uga.edu
 - linkedin.com/in/jefferyjohn

