The Pigeonhole Principle

CS 103ACE Day 7 – 4/29/24

Agenda:

- Review the Pigeonhole Principle and Generalized Pigeonhole Principle
- Understand how to work backward from what we want to show to apply the Pigeonhole Principle
- (if time) Continuing our proof on graphs, or midterm review

Announcements

- Midterm tomorrow – you got this!
- Office hours this week:
  - Today right after section
  - Wednesday, 4:30pm to 6:30pm
  - Thursday, 11:30am to 1pm
- About the day of the exam:
  - No ACE office hours Tuesday, but feel free to email / Slack / post on Ed!
  - (I will not be at my computer after around 3pm and so probably will not be able to answer questions - sorry!)

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What does each principle say about

1. Putting 11 objects into 5 bins?
2. Putting 5 objects into 5 bins?
3. Putting 2 objects into 5 bins?

Example Pigeonhole Applications

The pigeonhole principle tells us that **some bin** must have ___ **objects** in it

Think about how you can phrase the question in the problem statement in this way to assign bins and objects

Post-section recommendations

- Midterm tips:
  - Take care of yourself – get a good night's sleep, eat and use the bathroom before the exam
  - Take a deep breath! The problems on the exam are achievable with the tools in your toolkit – pay attention to detail, and don't be afraid to try different things
- Use Monday night to ask any last-minute questions before the midterm!