## Unit 2 Build Week Pt. 4

### AGENDA

- Backtracking
- Other Types of Interviews

# Backtracking

#### BACKTRACKING

- Backtracking: Incrementally building a solution and abandoning ("backtracking") from a candidate solution once realizing it's not a valid solution
- This is very useful when trying out a lot of combinations and getting rid of invalid solutions

#### PROBLEM WALKTHROUGH: UNIQUE PATHS III

- Return the number of 4-directional walks from the starting square to the ending square, that walk over every non-obstacle square exactly once
- <u>Leetcode Link</u>

#### PROBLEM WALKTHROUGH: UNIQUE PATHS III RECAP

- Backtracking: Incrementally building a solution and abandoning ("backtracking") from a candidate solution once realizing it's not a valid solution
- In this problem:
  - Incrementally find our solution via recursive DFS
  - Backtrack when we go out of bounds, find an invalid cell, or when we find the goal cell but haven't visited all the other cells once

### Other Types of Interviews

#### OTHER TYPES OF INTERVIEWS

- There are other types of interviews besides general data structure/algorithmic interviews
- Other common types of interviews:
  - Screening
  - Behavioral
  - Role-specific
  - System Design
- Allocate your practice accordingly depending on the companies you're applying for

#### SCREENING INTERVIEWS

- Usually the first interview when applying
- Evaluate your qualifications and see if you would be a potential fit for the role
- Clarify any questions about your resume
- Ask about motivations in applying and what you're looking for
- Mostly non-technical and conducted by recruiters

#### BEHAVIORAL INTERVIEWS

- Understand your behavior in a working environment
- Ask about your soft-skills and working experience in a team
- There's usually at least one round of this during full-time/intern interviews
- Usually conducted by managers

#### STAR METHOD

- A popular framework to answer behavioral questions
- Tell me about a challenging situation you had at work
- Situation Setup and describe the situation
  - I was on-call and I got an alert that errors for our main backend service were spiking in the middle of the night.
- Task Explain your responsibility in the situation
  - As on-call, my role is to make sure our services are stable and to triage/mitigate escalations when they happen.
- Action Describe the actions you took to accomplish the task
  - I looked at the timeline for when the errors started, along with the changes that were made at that time. I found the offending change and reverted it.
- Results State the outcome of your actions
  - The errors, which affected X users was mitigated in Y minutes. I also led a post-mortem afterwards, which led to creating more automated tests to prevent it from happening again.

#### ROLE-SPECIFIC INTERVIEWS

- Deep-dive into your domain-specific knowledge (e.g. iOS, Android, Front-end Web, AI/ML, etc.)
- Could also be mixed with an algorithmic/data-structures interview
- Some companies have switched to fully doing these types of interviews (e.g. startups)

#### SYSTEM DESIGN INTERVIEWS

- Usually for experienced hires, not common for interns/new grads
- Understand how well you're able to design an end-to-end system that is either in/out of your normal domain of expertise
- Some companies use this to determine level in hiring
- Instead you might be asked an Object-oriented programming (OOP) question

## **Good luck!**