Hacking the Internship Interview

Uber

Agenda

01 Interview Process

02 Hiring Manager Interview

03 Technical Interview

04 General Computer Science

05 Coding

06 Action Plan

07 Questions

Learning Objectives

- Understand the whole Uber interview process
- Understand how to prepare for any interview
- Action Plan how to prepare

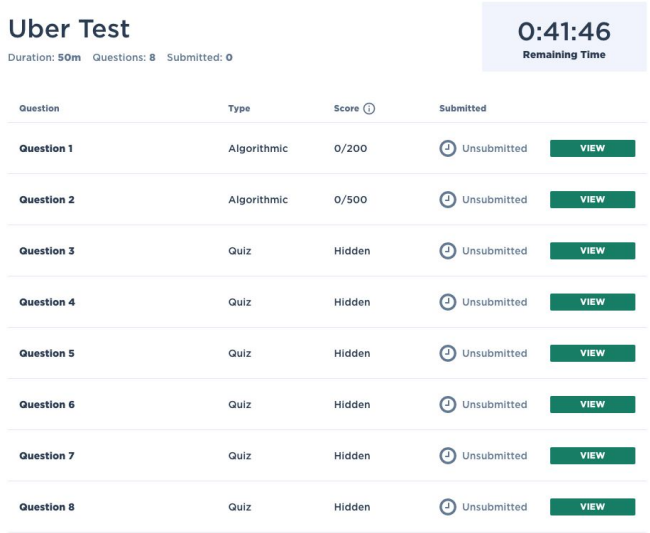
Interview Process

The Interview Process

Interview Process: Home Assessment

Format

- 50 minutes
- 8 questions
  - 6 quiz
  - 2 coding problems
- 6 Lightweight questions about Networks, DB, Microservices, OS
- Generally the coding questions are enough to pass



Interview Process: After the Home Assessment

- Each interview is 1 hour long
- Within a day all done
- It is OK not to know everything
- Relax

Hiring Manager Interview

Hiring Manager

More like a discussion/conversation rather than standard interview

Preparation tips:

- Think about your past experience/projects
- Assess your strengths/improvement areas
- Looking to determine:
  - Are you a team player
  - Are you coachable
  - Are you passionate

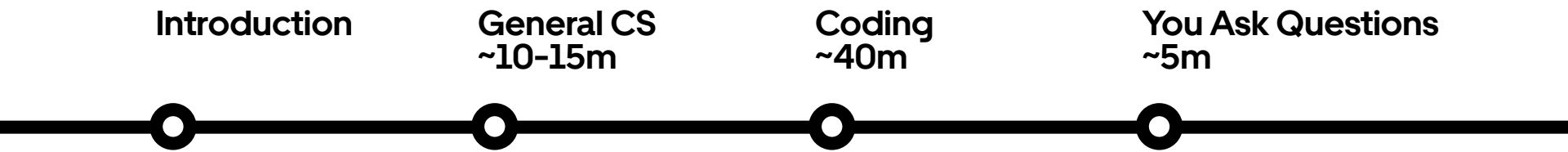
Hiring Manager: interview tips

During the interview process be:

- yourself and authentic
- honest about your goals and experience
- humble but clear about your achievements
- research the company
- curious and ask questions

Technical Interview

Technical Interview: Structure



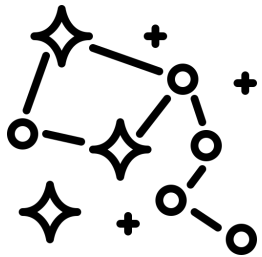
General Computer Science

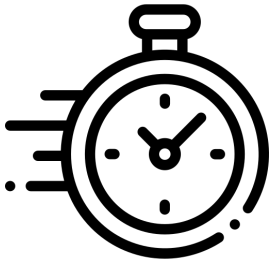
General Computer Science: details

- Algos & Data Structures
- Databases
- Networks
- Operating Systems

General CS: Algos & Data Structures

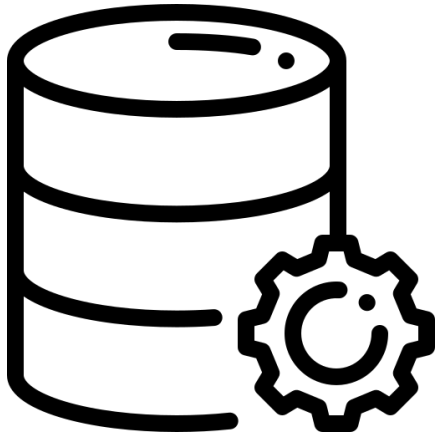
- String/Array - binary search
- Matrix
- Linked Lists
- Graph - representations, BFS, DFS
- Sorting
- Hashmaps, Stacks, Queue
- Time & Space Complexities





General CS: Databases

- SQL vs NoSQL
- ACID properties
- Data Modeling (1 to 1, Many to Many, …)
- Indexing



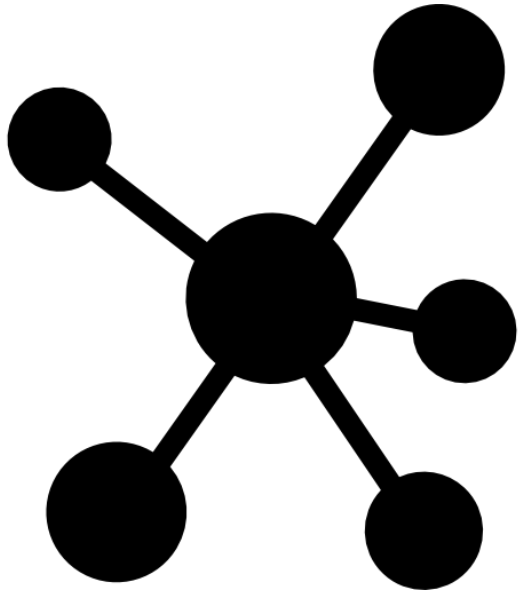
General CS: DB Preparation

Materials

- SQL Tutorial - Full Database Course for Beginners from freecodecamp.org
- Introduction to NoSQL - Martin Fowler
- Mircroservices - Martin Fowler

General CS: Networks

- TCP/IP model and the OSI model
- Protocols
- REST
- HTTP
- DNS
- TCP
- IP
- UDP



General CS: Networks Preparation

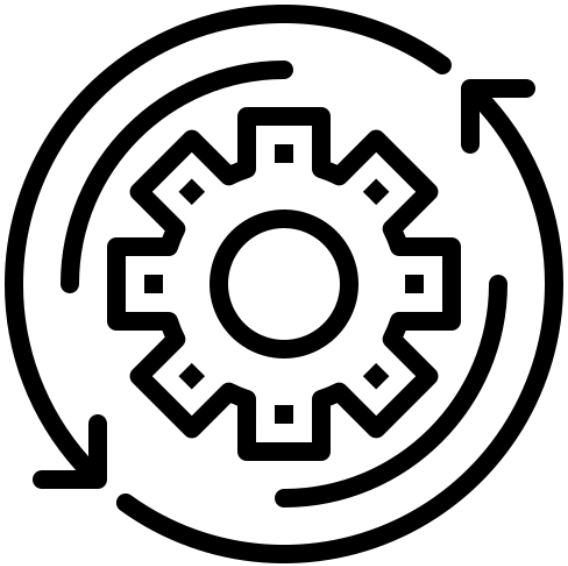
Materials

- Network Fundamentals from Network Direction
- **For the curious:**
  - Computer Networking: A Top-Down Approach by Jim Krouse, Keith Ross

General CS: Operating Systems

Details

- Parallelism
- Concurrency
- Threads
- Process



General CS: Operating Systems Preparation

Details

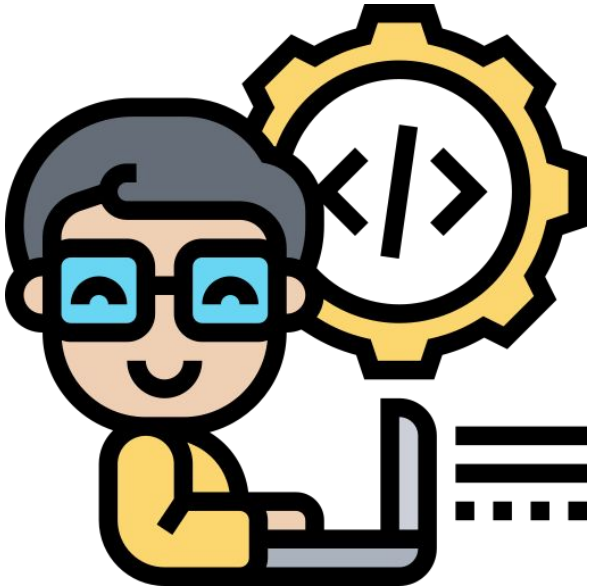
- FMI Course(Velin + Skeleta)
- Berkeley CS162

Coding

Coding

Details

- ~40m to solve a problem
- All languages allowed
- Screen is being shared
- Googling how to use the language is allowed
- There is an format/structure



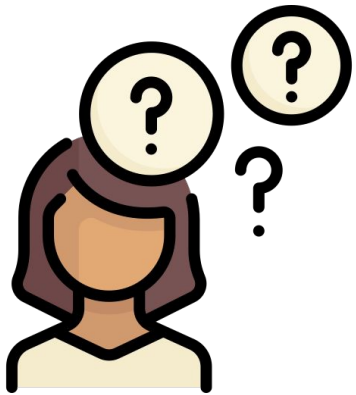
Structure

- Task Requirements
- Constraints, edge cases
- Test Cases
- Idea + analysis
- Coding
- Follow ups
- Repeat

Nothing Scary

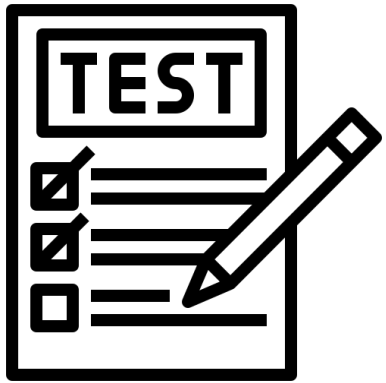
- Data Structures:
  - Arrays, Hash tables, Trees, Graphs, Linked Lists, Stacks, Queues
- Algorithms:
  - Sorting, Breadth-First Search, Depth-First Search, Binary Search, Tree Insert/Find
- Concepts:
  - Big O, Recursion
- Avoid:
  - Tree balancing, memoization / dynamic programming, heap implementation, topological sort, dijkstra's algorithm, etc

Ask clarifying questions!
Don’t assume requirements!



Ask about constraints and edge cases

Write down tests cases and scenarios in the comments.



Example

Problem:

Add two numbers whose digits are stored in a linked list in reverse order

Input: 1 -> 2 -> 3 and 3 -> 4
Output: 4 -> 6 -> 3
Explanation: 321 + 43 = 364

Example: Clear requirements

Questions to ask

- Is there a cycle in the linked list?
- Do they fit into memory?
- How large are the numbers?
- Are they positive?
- Are they natural?
- What is the output if one them or both are Null?
- Should we define our own linked list?

Example: Test Cases

Different Length

Input: 1 -> 2 -> 3 and 3 -> 4
Output: 4 -> 6 -> 3
Explanation: 321 + 43 = 364

Same length, carry over

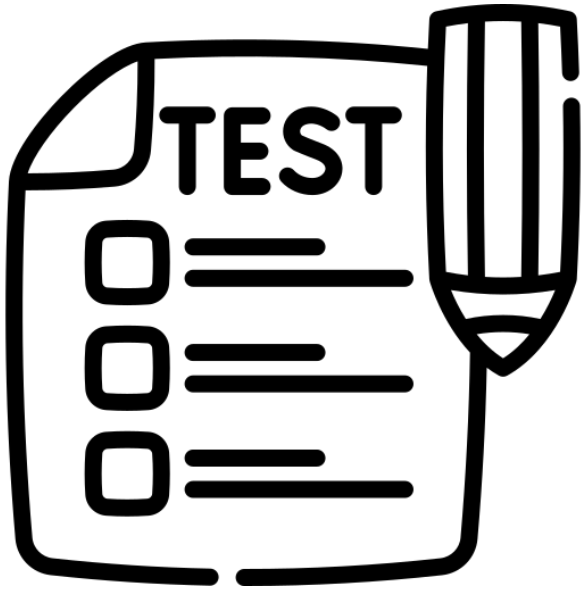
Input: 6 -> 3 and 5 -> 6
Output: 1 -> 0 -> 1
Explanation: 36 + 65 = 101

One is nil

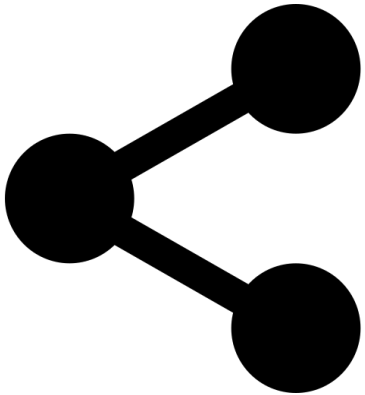
Input: 1 -> 2 -> 3 and Nil
Output: Nil

Both are nil

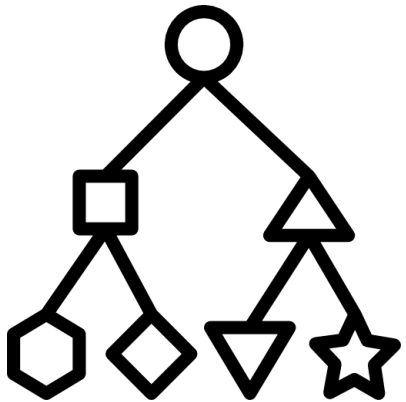
Input: Nil and Nil
Output: Nil



Make a plan and SHARE your idea BEFORE starting to code



Split into subproblems
Validate progress



Run the code and test it

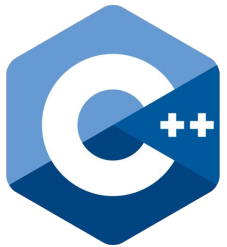
Example: Iterative programing

Problem: Implement merge sort

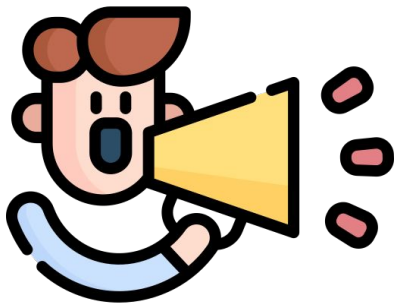
- Subproblem 1: Parse the input
- Subproblem 2: Merge function and test it
- Subproblem 3: Write the splitting and merging function

Use the coding language you are most familiar with.

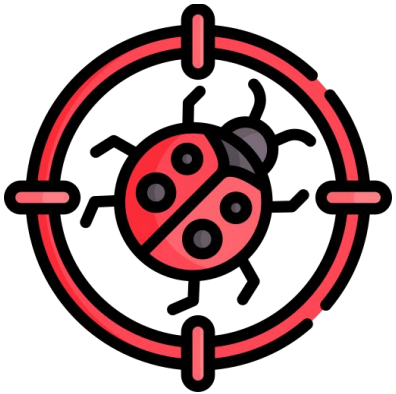
Make sure you own your IDE



Think out loud, when solving the problem



Use the debugger



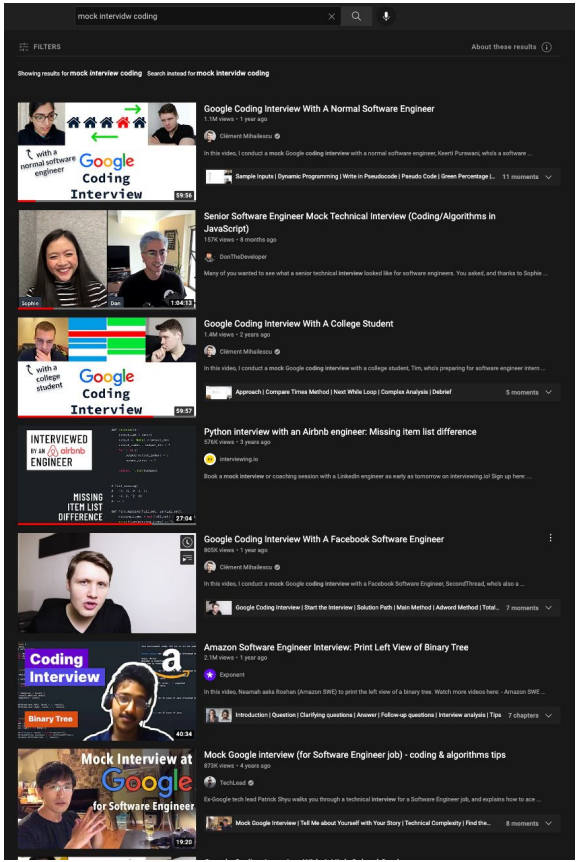
The interviewer is there to help.
Listen to the interviewer

Write clean code.

Still, prioritize a working solution

Coding platforms

YouTube Mock Interviews



Resources

Links

- Programing Creek
- Interactive Coding Challenges
- Cracking the Coding Interview

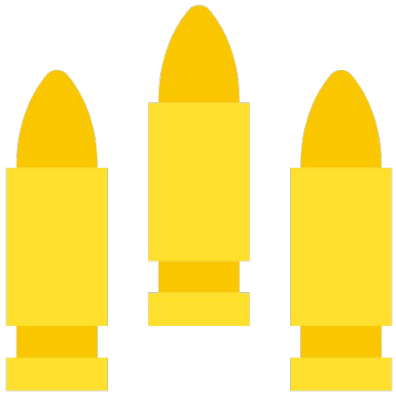
Action Plans

Interviewing is a sport

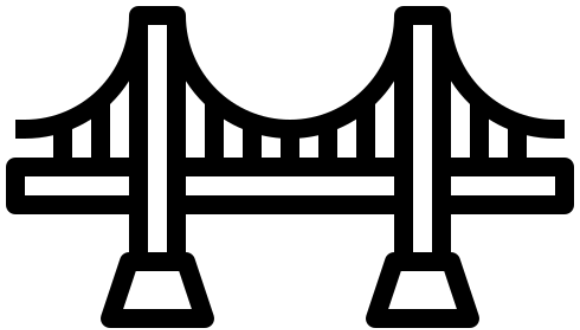
Nothing beats experience

- List your top 3 companies you want to work for
- List 10+ companies, you don’t care about.
  - FMI career fair
  - LinkedIn
  - Jobs.bg
- Apply at the 10 companies you don’t care about.
  - Questions will start repeating
  - You will know what to learn

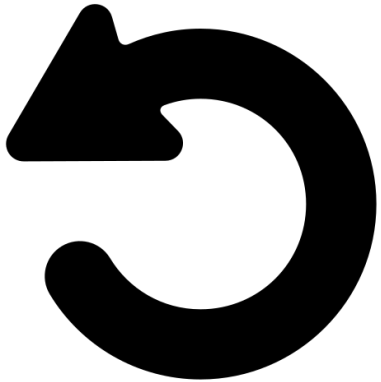
So many bullets



No Bridges burnt



Retrying is OK



Personas

- “I have two weeks. Ain’t nobody got time.”
- “I have 3+ months to fully prepare. I am looking for the best opportunity for me, I am picky”

Persona: I have 2 weeks

Action Plan

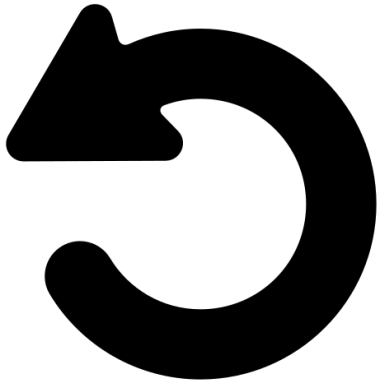
- Watch the Network Fundamentals Course
- Go over concurrency, filesystems, permissions
- Go over SQLBot and watch Martin Fowler Lectures
- At least 30+ problems
  - Graph
  - Arrays/Strings
  - Hashmaps

Persona: 3+ months

Action Plan

- Watch the Network Fundamentals Course and the Computer Networks: Top Down Approach lectures
- Watch the Berkeley OS course. Go to Velin's lectures
- Learn SQL, RDBMS, watch Martin Fowler lectures about NoSQL and microservices
- **Do a mock interviews with a friend**
- **Solve as many leetcode problems as possible**

Retrying is OK



Questions?